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PSYCHOSOMATIC ASPECTS OF HYPERTENSION

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It is generally admitted that psychic factors play some part in essential hypertension. Thus, it is always emphasized that we must allow for the emotional element in individual blood pressure readings. It is also well known that rest and reassurance play a large part in the medical management of hypertensive patients, both in relief of symptoms and in reduction of the blood pressure level.[1] The early symptoms of hypertension are often exactly those of a psychoneurosis.[2] Emotional stress at times seems to precede the onset of hypertension, and anxiety bears a close relationship to the aggravation of existing symptoms in hypertension.[2] Personality study often reveals a deep seated conflict which stands in close relationship to this anxiety.[4]

To study these and related problems I have reviewed the records of 200 consecutive patients with the symptom of hypertension, of whom 144 seemed to correspond to the clinical picture of so-called essential hypertension. Of these, 93 permitted satisfactory psychosomatic study. This included the usual general medical survey, with special emphasis on the cardiovascular-renal system, plus urographic studies and observations of renal blood flow in selected cases; and personality studies which, according to a scheme outlined elsewhere,[5] consisted in a detailed investigation of the life situation and of the personality structure, in a series of from two to six hourly interviews.

The following groupings were made: Group 1, 5 cases, were those in which the psychic factors seemed intimately related to the onset of the hypertension and, apparently, an important factor in its development. Group 2, 48 cases, consisted of those instances of hypertension in which psychic factors seemed chiefly responsible for symptoms, even though their relation to the onset could not be determined with any degree of certainty. Group 3, 33 cases, was made up of those in which psychic factors seemed partly responsible for symptoms and, therefore, important in treatment, and group 4, 7 cases, were those in which psychic factors apparently bore no relationship either to the onset of hypertension or to the production of symptoms.

All varieties of personality type, including psychoneuroses and character disorders, were discovered and of these the compulsive type of character was in the majority, but no significant correlation between group and personality type could be established.

PSYCHOSOMATIC ASPECTS OF ETIOLOGY AND PATHOGENESIS

Two psychic tendencies seem to stand in close relationship to hypertension: anxiety and rage. Essential hypertension is one of the commonest disorders of civilized life, and anxiety states are certainly no less common; therefore, simply from the standpoint of their frequency, it is not surprising that the two are often present in the same individual. But the question which interests us is this: Is there a more specific relationship between the two?

It has long been known that anger is an emotion connected with high blood pressure; how often people remark to a person who is angry "Now watch your blood pressure." However, psychoanalytic studies suggest that hostile impulses of which neither the individual nor the casual observer is aware may also have an important influence on the blood pressure. In other words, long-continued, repressed rage may manifest itself through the circulatory system by elevation of the blood pressure. Alexander,[4] Saul[6] and Dunbar[7] all call attention to the unresolved psychologic conflicts which give rise to chronic emotional tensions, and these, they feel, are specifically related to the hypertension.

The factor of repressed rage is seen in the following case of early essential hypertension from group 1:

CASE 1.[3]—*Recurrent attacks of acute vasospastic hypertension with hypertensive encephalopathy. Apparently no harm from excessive energy output when directed along aggressive channels; recurrence of hypertension corresponds with period of throttled aggression.*

History.—A white man aged 29 was first referred to the Temple University Hospital in December 1935 with the diagnosis of acute appendicitis, which was proved at operation. The blood pressure during spinal anesthesia gradually fell from 140/78 to 86/48. The patient later reported that he had been "scared to death of the operation"; that he knew it was a "pus appendix" and that he was fearful that peritonitis would develop. Ten days postoperatively a note on his record stated that he "seemed somewhat hysterical." The blood pressure had been normal and the general physical condition seemed satisfactory, so that he was discharged at the end of two weeks.

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1. Palmer, R. S.: Efficacy of Medical Treatment in Essential Hypertension, New England J. Med. **215**: 569 (Sept. 24) 1936.
2. Ayman, David, and Pratt, J. H.: Nature of the Symptoms Associated with Essential Hypertension, Arch. Int. Med. **47**: 675 (May) 1931.
3. Weiss, Edward: Cardiovascular Lesions of Probable Psychosomatic Origin in Arterial Hypertension (Case 2), Psychosom. Med. **2**: 250 (July) 1940.
4. Alexander, Franz: Emotional Factors in Essential Hypertension, Psychosom. Med. **1**: 173 (Jan.) 1939.
5. Weiss, Edward, and English, O. S.: Psychosomatic Medicine, Philadelphia, W. B. Saunders Company, to be published.
6. Saul, L. J.: Hostility in Cases of Essential Hypertension, Psychosom. Med. **1**: 153 (Jan.) 1939.
7. Dunbar, Flanders: Character and Symptom Formation, Psychoanalyt. Quart. **8**: 18 (Jan.) 1939.

The same evening he felt dizzy, became delirious and had to be restrained. The following morning he reported "that he was blind in both eyes." He was sent to the psychopathic ward of another hospital, where he remained for three weeks. From its records it was noted that he had reported that when he came home from the Temple University Hospital he developed pain in the suprapubic region which extended into the testicles, which was terrible: "It made me almost hysterical." He woke up unable to see and became very agitated. At the hospital he had auditory and visual hallucinations. On discharge he was so weak that he was unable to walk. Because of this weakness and nervousness he was readmitted to Temple University Hospital in February 1936.

Physical Examination.—Emaciation was pronounced. The skin was warm and moist. There was considerable muscle weakness, and muscle twitchings were quite evident. The blood pressure during this stay in the hospital varied between 160-180 systolic and 110-120 diastolic. There was no evidence of thyroid enlargement. The heart seemed normal in size; the aortic second sound was accentuated. The eyeground examination showed evidence of an acute vasospastic retinitis without organic sclerosis (Dr. Gibson). The nasal retinal arteries were especially constricted. The temporals showed moderate attenuation. There were a few hemorrhages and exudates in the right retina and many in the left. The spinal fluid examination showed an initial pressure of 10 mm. of mercury. The fluid was clear, and no abnormalities were detected. Psychiatric examination found the patient well oriented and suggested that he had previously suffered from an organic delirium.

The urine examination showed no albumin, although there were occasional casts. Renal function was normal. The blood count showed a moderate degree of secondary anemia. All blood chemical studies, including dextrose tolerance, were within normal limits and the basal metabolism was plus 6 per cent.

Previous Medical History.—This was negative except that since about the age of 16 he had a "bilious" headache about once a month unless he "warded it off" with a laxative. He reported that his father had suffered from the same kind of headache.

He completed the eighth grade of school. He married at the age of 20. His wife had two children, one of whom died in infancy and the other was living and well.

His father suffered from valvular heart disease and his paternal grandfather died of a "stroke" after the age of 60. The mother had gallbladder disease, and the maternal grandfather died of uremia. The patient was the oldest of a family of six, and there was nothing remarkable in the medical history of his brothers and sisters. None of them had hypertension.

After his discharge from the hospital he was carefully followed by his physician, who recorded that the blood pressure gradually fell from 150/110 to 130/88. This last reading was obtained after the patient had returned to his job as truck driver in a large concern and had been working for about a month. Meanwhile his weight had increased from 114 to 127½ pounds (from 52 to 58 Kg.) and he felt very well.

Third Hospital Admission.—In May 1936 he witnessed an automobile accident and, although no one was injured, the patient became terribly excited over "what might have happened to some children who were playing in the path of the truck." He "knew that he would get sick again" and after a few hours of restless sleep he awakened with abdominal pains, nausea, vomiting and diarrhea. (Later his physician reported that the first illness, that is, the appendicitis, had begun similarily: "like gastroenteritis with diarrhea"). Nausea and vomiting continued, and also the diarrhea. Sleep was restless and fitful and a few days later the patient reported blindness on awakening; but there was no evidence of this when examined by his physician later in the day. Abdominal examination was negative but the blood pressure was now 160/100. That night he had convulsive seizures. By midnight he was mentally clear but the blood pressure was 190/110. He was readmitted to the Temple University Hospital in June 1936.

On this admission the blood pressure remained constantly at 200-210 systolic and 140-160 diastolic. There were almost no fluctuations. Even during sleep the blood pressure on several occasions was found to be 175/125. Weakness was not so pronounced as before. Now the eyeground picture was stated to be acute vasospastic retinitis with arteriosclerosis grade 1; but the functional (spastic) element was still the predominant feature. There were some retinal scars where previous exudates had been.

Psychologically it was found that the patient had been sleepless and restless ever since witnessing the accident, whereas previously he had always been an excellent sleeper. He kept recalling the accident and thought how "terrible" the consequence might have been. Dr. English suggested that there had been a great deal of unconscious anxiety, which, following operation, had resulted in a psychosis but had then subsided, during which time the patient improved and remained well for more than a month. Then after the accident anxiety broke out again, not quite to the former extent but with pronounced insomnia and a constant feeling of tension.

Following discharge from the hospital in June 1936 the patient constantly improved. The weight increased and the blood pressure gradually diminished. During the latter part of June it was reported on several occasions at 140-150 systolic and 115-120 diastolic. By the latter part of July the blood pressure had dropped to 120/90. The weight had increased to 121½ pounds (55 Kg.). The patient felt perfectly well, eating and sleeping normally, and once more returned to work.

During this period more detailed information bearing on his life situation was obtained.

Life Situation.—According to the mother the patient was a normal child, the oldest of six children. Other than difficulty in weaning there were no behavior problems although there were occasional nightmares. He began working at the age of 17. For some time he was employed as a clerk with a refining company and there he "first developed a fear of operations; a friend had the wrong kidney removed." There he also saw many accidents and deaths and it was largely for that reason that he gave up the position. He was always afraid of hospitals, "a fear of being cut."

He married at the age of 20. Although his wife was frigid, he indulged in frequent intercourse and asked whether perhaps "that might be responsible for his present difficulties." Occasionally he would suffer from premature ejaculation. With his illness he lost desire for intercourse. Then when desire returned he could not maintain an erection. Since the illness he had developed nocturia. He would awaken with a "water" erection and complained of a pain in the testes.

For the past eight years he had been employed as a truck driver for a large concern. Beginning in the spring of 1937 he began to interest himself in union work. He stated that his father, who had worked for the same company, had always resented the company's "restrictions" but did nothing but, he said, "my mother is a fighter and I must have inherited it from her." Furthermore, his father was killed by a truck in the summer of 1937, and the company was fighting compensation. This, he said "makes me more determined than ever to fight." He threw himself into the work with great intensity and after working seven and one-half hours a day on the truck he would than engage in union activities for another five or six hours and, in spite of this fact, at the end of six months of such constant pressure of activity he had gained weight and his blood pressure still averaged 135/90. He became an official of the union and, in addition to the long hours of work, managed to do a great deal of study. He often worked eighteen out of twenty-four hours and rarely got more than six or six and one-half hours in bed. His activity in union work dated from April 1937 to January 1939, his blood pressure was still 135/90 and he enjoyed excellent health.

In October 1936 Dr. Gibson found the eyegrounds almost normal. There was very slight attenuation of the nasal arterioles with arteriosclerosis grade 1 of the hypertensive type in the periphery of all four arterioles and residual scars of previous retinitis.

All vasospastic features had subsided and a remarkable increase in the caliber of all vessels was noted. In July 1939 Dr. Gibson found "a very mild attenuation of the arterioles

without exaggeration of the reflex stripe. The retinitis has completely subsided. This is a most unusual remission in the retinal picture of hypertension."

Recurrence of Hypertension.—In September 1939, for the first time since his recovery, the blood pressure was definitely elevated, 160/105. Union activities had "folded up" in the early part of June; he was bitterly disappointed and was anxious to do something about it but could not stir up any enthusiasm among his associates. When talking to them he got so "hot under the collar" that he lost the power of speech. He felt very keenly that something should be done but he "just couldn't push things through." He had a constant feeling of tension and could not relax. The injustice was "burning him up," he felt himself "boiling inside" and could "commit murder."

Coincidentally there had been a recurrence of premature ejaculation and a feeling that "he could not be satisfied sexually."

It seemed obvious that his throttled aggression manifested itself both in the sexual sphere and in his general feeling of not being able to relax, of being irritable and easily angered. I suggested that the tension which he formerly got rid of in union activities was now bottled up and had to find an outlet in bodily symptoms.

Summary.—A man of 29 with pronounced "mutilation anxiety," first seen in December 1935, developed high blood pressure and an acute psychosis following an appendectomy when he became fearful that peritonitis would develop. An acute vasospastic retinitis developed, but the heart and kidneys seemed unaffected. The hypertension gradually subsided, but in the spring of 1936, following an anxiety producing episode, hypertension, vasospastic retinitis and hypertensive encephalopathy again occurred. Once more the blood pressure and eyeground changes subsided as anxiety was reduced and for the next three years the patient remained well, having maintained a normal blood pressure (135/90) since July 1936.

For almost two years of this period he was well and the blood pressure remained normal in spite of excessive work. The long hours and intense activity were employed, however, in union activities, in which he was able to give direct expression to his aggressive impulses. Union activities ceased in the spring of 1939 and in September he was once more suffering from tense feelings, experiencing sexual difficulties and the blood pressure was once more elevated. This coincided with the period of "throttled aggression."

SUMMARY OF PSYCHOLOGIC MATERIAL WITH REGARD TO ETIOLOGY AND PATHOGENESIS

Anxiety and rage are emotional factors commonly related to hypertension. Psychoanalytic observations show that rage is chronic and repressed and that the resulting psychologic conflict produces "tension" that seems related to hypertension. In some patients it is apparently the chief among the multiple factors that enter into the pathogenesis. An analogy might be drawn to the role of the kidney or the endocrine glands, either of which, in rare instances, may be chiefly responsible for the presence of hypertension but in most instances seem to play a secondary role, depending on a constitutional or inherent tendency. The psychologic factor is only one phase, although an important phase, in the "composite of the degree and kind of renal, endocrine and nervous participation."[8] An attempt to demonstrate this relationship is shown in the accompanying diagram. This makes an effort to indicate the relative importance of constitutional and hereditary factors, which make up the base of the pyramid, with regard to the interrelated systems of the body that have to do with hypertension, shown as the sides of the pyramid. These systems are then shown as triangles, with the sides of the triangles representing interrelated factors.

8. Corcoran, A. C., and Page, I. H.: Arterial Hypertension; Correlation of Chemical and Experimental Observations, J. A. M. A. **116**:690 (Feb. 22) 1941.

PSYCHOSOMATIC ASPECTS OF THE CLINICAL PICTURE OF HYPERTENSION

Although Ayman [2] showed that the early symptoms of hypertension are psychoneurotic, it still is common practice to place the blame for all symptoms in a hypertensive individual on his high blood pressure. When the hypertensive-vascular disease is advanced and vital organs have been affected, it is, of course, true that many symptoms are caused by failure of these organs. Even here, however, it is important to evaluate the part played by emotional as well as physical factors.[3]

In an analysis of symptoms in this series of patients, two special groups occurred with great frequency: (1) headache, dizziness, fatigue and constipation in 50 patients and (2) pain in the heart region associated with palpitation, dyspnea and fatigue in 38 patients. Of course, as Ayman [2] showed, all combinations occur; but these groupings are very common.

Janeway [9] observed that headache was the most frequent symptom of which his hypertension patients complained. He described the typical hypertensive headache which appears on awakening, consists of sensations ranging from a dull ache to severe pounding

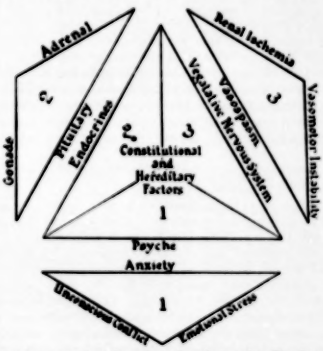

Diagram to summarize discussion of pathogenesis. The base of the pyramid is made up of constitutional and hereditary factors; the sides consist of interrelated systems which are shown separately as triangles with their sides representing interrelated factors. From Weiss, Edward: Recent Advances in Pathogenesis and Treatment of Hypertension—Review, Psychosom. Med. **1**:180 (Jan.) 1939.

distress and is usually located in the cervico-occipital region. But, in addition, he noted that a surprisingly large number of patients had been subject to migraine throughout life. Gardner, Mountain and Hines [10] found migraine five times as frequently in hypertensive patients as in a control group. Then there are a great variety of head pains, discomforts and peculiar sensations, such as dulness and fulness with or without vertigo, which occur in hypertensive subjects and are often referred to as headaches. The tendency is to attribute all these "headaches" to the hypertension. Certainly elevation of the blood pressure seems responsible for the so-called typical hypertensive headache (even here, the anxiety factor enters as far as it is related to exacerbations of blood pressure), but the vast majority of peculiar head sensations and discomforts often designated as headache cannot be correlated

9. Janeway, T. C.: A Clinical Study of Hypertensive Cardiovascular Disease, Arch. Int. Med. **12**:755 (Dec.) 1913.

10. Gardner, J. W.; Mountain, G. E., and Hines, E. A., Jr.: The Relationship of Migraine to Hypertension and to Hypertension Headaches, Am. J. M. Sc. **200**:50 (July) 1940.

with the blood pressure level itself. Here the emotional factor is directly related to the peculiar head sensations. An example from group 2 follows.

CASE 2.—*Hypertension and anxiety: the emotional factor in relation to headache and fatigue.*

History.—A white woman aged 55, first seen in October 1941, complained of hypertension, which had been discovered about a year before, headaches and fatigue.

Headaches had occurred for the last few years. They were not typical hypertensive headaches. They were located in the front of the head, were described as a dull ache and were occasionally present in the morning but usually became more severe as the day wore on and "took the life out of her." During the same period she found everything to be an effort, had no ambition and tired very easily. Because of headaches and fatigue she had sought medical attention, and then the blood pressure elevation had been discovered.

There was nothing significant about the past medical history. Artificial menopause had been brought about fifteen years before following excessive bleeding.

She had been married for thirty-five years and had one child, now a man of 30, who was well. There was a history of hypertension on the father's side of the family, and the father had died of a "stroke of apoplexy" at the age of 75. The patient thought that she resembled her father.

Physical Examination.—The blood pressure averaged 200/120. The heart seemed within normal limits as to size, as determined by the orthodiogram, and the electrocardiogram indicated only left axis deviation, other features being within the limits of normal. There was no evidence of impairment of cardiac function. The eyegrounds showed arteriosclerosis of the hypertensive type, grade 1, but no evidence of retinitis. Urinalysis was negative and renal function, as measured by the urea clearance test, was within normal limits. An intravenous urogram was normal.

The conclusion was essential hypertension with symptoms out of proportion to disease.

Life Situation.—The patient had been "a healthy, happy child reared in a cultured atmosphere." Following an unhappy love affair she had married a man who turned out to be "stupid, stingy and stubborn" and who failed to provide for her properly. She had entered business with him, as did the son later, in an effort to provide more successfully for the family and save the expense of hiring help. There was much contention between the passive, dependent son and the harsh and critical father; the patient, whose sympathy was with the son, had to act as a buffer between the two. While she was a pleasant and intelligent person, she too had a passive personality and dared not fight with her husband, who had "a terrible temper."

In addition to the difficulties of this situation she had become painfully aware that her husband was engaged in an extramarital affair. Indeed, he made no secret of the fact. He considered this a natural appetite that had to be satisfied, whereas smoking and drinking were unnatural appetites that were quite sinful. She was subjected to constant humiliation with regard to this affair but was never able to do more than hope that some day this stubborn and vindictive man would die, so that she "might have some peace." The latter information, of course, was not expressed directly as a wish. It was stated quite indirectly but was an obvious indication of the difficult family situation from which she could not extricate herself and for which she seemed to be paying a price in the symptoms of headache and fatigue. She herself suggested that there was a definite relationship between "contention, tension and hypertension."

The opportunity, for the first time, to discuss her situation led immediately to some relief of anxiety and, although no advice was given regarding her family situation, she apparently gained enough courage to confront her husband with an ultimatum regarding his extramarital affair. Contrary to her beliefs, "this brought him to his senses" and removed one of the tension producing factors from her environment. At the same time she managed to regulate her life more successfully, so that she obtained more physical rest and this in turn seemed to bring about improvement.

After a few weeks blood pressure figures were somewhat lowered, but the chief benefit was the disappearance of symptoms and the improvement in her attitude and general sense of well being.

Summary.—A middle aged woman complained of headaches and fatigue and had hypertension. The symptoms seemed out of proportion to the amount of physical disease. She was a passive personality caught in a family situation which produced humiliation and rage, from which she could not extricate herself. Airing her problems permitted a better perspective and allowed her to mobilize her aggression along more direct channels. Relief of symptoms followed, although the blood pressure was not materially affected.

Migraine presents a more complicated mechanism. It can hardly be assumed, as in the case of anxiety and hypertension, that migraine is so frequent in hypertension because the two are common disorders and therefore must frequently meet. Instead, there seems to be a common denominator, and psychologic study gives a clue. Apparently there is an intimate relationship between the personality structure of the two disorders. Both present evidence of chronically repressed rage.[11] Attacks of migraine occur when situations are met which intensify the rage without providing opportunity for adequate expression.

Most patients with hypertension see a connection between headache and bowel function. When they suffer from constipation they are ill, and when the bowel moves freely they are speedily relieved of symptoms. This, of course, is true for many patients who do not have hypertension, but in hypertensive individuals the relationship is especially obvious. Moreover, it is a relationship which is easily exploited and in which the physician becomes a pathogenic agent when he focuses attention on the bowel, as in the days, fortunately not now so common, when colonic irrigations were frequently prescribed for "autointoxication." It is very difficult to overcome a patient's prejudices—and even those of the medical profession—in this regard. But it does seem to be largely a psychologic association, because relief comes too quickly after a bowel movement to be ascribed to physical causes, and, in addition, deeper psychologic study often shows the relationship between ideas of obstruction, "poisoning" and pain in the head.

Patients frequently refer to the symptom of vertigo, which occurs in a great many instances with the head discomfort just described as dizziness or giddiness. Differentiating syncope, which does not imply a disturbance of equilibrium, and true Ménière's syndrome, one often finds that the symptom of vertigo bears a definite relation to the anxiety state. Frequently in association with ringing in the ears and sometimes with numbness and tingling of the extremities, it is the result of psychic stress.

The early symptoms of anxiety are usually expressed through the cardiovascular, respiratory, gastrointestinal and genitourinary systems. It is after the anxiety state has persisted for some time that the symptom of vertigo makes its appearance. When it occurs in association with hypertension the vascular disease often is held to be responsible. However, it is well to bear in mind that, like organ language elsewhere,[12] vertigo frequently is the symbolic representation of insecurity, and this is just as true when it occurs in association with hypertension.

11. Fromm-Reichmann, Frieda: Contribution to the Psychogenesis of Migraine, Psychoanalyt. Rev. **24**: 26 (Jan.) 1937.

12. Weiss, Edward: The Treatment of Illness of Emotional Origin by the Internist, Ann. Int. Med. **14**: 424 (Sept.) 1940.

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Pain in the precordium, palpitation, dyspnea and fatigue are a group of symptoms frequently associated with cardiac neurosis. Fatigue may be a prominent part of the clinical picture, in fact, the most prominent symptom, although again and again the patient speaks of pain in the heart region and only after considerable discussion is it brought out that really the most important symptom is fatigue, that it occurred first, and that only later was pain added. One of the commonest causes of fatigue is emotional conflict, which steals energy which then is not available for useful purposes.

When these symptoms are present with a normal cardiovascular system and general medical examination otherwise is negative, it is not as a rule difficult to assign them to their proper sphere—the emotions. When hypertension is present, however, it is almost invariably held to be the responsible factor. It is under such circumstances that psychosomatic study will frequently reveal that symptoms are out of proportion to disease, that there is much conflict in the personality makeup and that it depends on repressed hostility. Moreover, a specific as well as a temporal relationship will be found between the onset of the symptoms and a psychic event.

SUMMARY OF CLINICAL PICTURE

Headache and various forms of head discomforts, dizziness and constipation, as well as precordial pain, breathlessness of the sighing respiration variety, and fatigue often cannot be explained directly on the basis of the hypertension. They are out of proportion to the disease. When such patients are studied from a psychosomatic point of view it is often found that there is a great deal of conflict in their makeup and an inability to express their aggression directly, and thus it would seem that tensions which cannot be adequately expressed in words or action seek their way out in the circulatory system by means of body language. It is hardly necessary to say that psychologic factors are not the only ones of importance in the clinical picture of hypertension, but they are important because their modification often results in benefit to the patient, regardless of whether the blood pressure figures are lowered or not.

EMOTIONAL FACTORS IN TREATMENT

Psychologic studies show the necessity for a more adequate approach to the study of hypertension than "Are you worried about anything?" and a more adequate treatment than "Go home and take it easy." This kind of superficial psychotherapy, if it may be termed that, is in line with the kind of medical management that has been given to the unfortunate sufferer from essential hypertension in the past.

What has been done in an effort "to bring the blood pressure down"? Because of an ill founded idea that protein was responsible for hypertension and kidney disease, the patient was denied meat and eggs, especially red meat, which for some reason was looked on with particular dread. His diet was then rendered even more unpalatable by the withdrawal of salt. Sympathy would doubtless have been extended to this half starved person, except that he probably was not able to eat anyway, his teeth having been extracted on the theory that focal infection had something to do with his hypertension. Perhaps before this he had sacrificed his tonsils for the same reason. In case some food had been consumed, the slight colonic residue was promptly washed away by numerous colonic irrigations, especially during the period when the theory of autointoxication was enjoying a wave of popularity. To add to his unhappiness he was often told to stop work and exercise and, of course, was denied alcohol and tobacco as well as coffee and tea. Then came the use of potent drugs (thiocyanate) and unwise tampering with vital tissues—the partial removal of normal adrenal glands and the application of roentgen rays to the pituitary area—and now the unfortunate person with hypertension has been referred to the neurosurgeon, who is removing more and more of his sympathetic nervous system.

These methods of treatment grew out of our traditional "organic" understanding of hypertension and our emphasis on the necessity for "bringing the blood pressure down" to the exclusion of a more comprehensive and more fundamental understanding of the hypertensive individual. It is freely admitted that the height of the blood pressure is one of the best indexes to the condition and prognosis of the patient with essential hypertension, but to put all of our emphasis on the matter of bringing the blood pressure down is to do the patient an injustice. This is true whether we speak of drug treatment (thiocyanate) or surgery of the sympathetic nervous system. Thiocyanate has brought about blood pressure reduction in many patients but, according to Corcoran and Page,[13] neither the decreased arterial pressure following sympathectomy nor the therapeutic use of thiocyanate is associated with the undoing of the efferent arteriolar constriction, so that neither sympathectomy nor thiocyanate reverses the process that leads to increased arterial pressure and renal vasoconstriction.

Sympathectomy was first recommended from the standpoint of relaxing a large area of the vascular bed, and only later were the results explained as being due to an increased blood flow to the kidneys. But either measurement of the renal blood flow, even after the extensive Smithwick denervation, showed no significant change or an actual decrease in renal blood flow occurred. To quote Page,[14] "a better explanation appears to be that the decrease of arterial pressure, which follows sympathectomy in man is an expression of denervation of the reactive visceral splanchnic innervation, with resultant partial failure of venous return most evident in the erect posture. The decrease of venous return limits cardiac output and thus tends to decrease arterial pressure. We must also conclude that the operation does not interfere with the fundamental disturbance of the heart and peripheral vessels but that it merely introduces a new, almost accidentally corrective deviation from normal physiology." Again and again we read in papers dealing with the surgical treatment of hypertension that "since the medical treatment of hypertension has failed surgery is justified." I question the failure of medical treatment; our attitude here will depend on our objectives. These must be redefined.

A consideration of this material indicates that essential hypertension is a deep seated constitutional disorder, woven into the very structure and personality of the individual, that it represents a composite of multiple factors, that there is no specific treatment and that at present we cannot speak of cure. Various treatments may relieve symptoms and lower blood pressure, but

13. Corcoran, A. C., and Page, I. H.: Renal Aspects of Experimental and Clinical Hypertension, J. Lab. & Clin. Med. **26**: 1713 (Aug.) 1941.
14. Page, I. H.: Arterial Hypertension, J. Urol. **46**: 807 (Nov.) 1941.

it is doubtful that we can take away the inherent hypertensive tendency. It is possible that renal extracts, now seemingly in the position of ovarian extracts of a dozen years ago, act physiologically and may come to occupy a position similar to the estrogenic substances that are used so efficaciously as substitutive preparations today. Even then, however, and using the analogy of the menopausal syndrome, we shall still have to think of the personality of the individual with the disorder. We shall still have to try to understand not so much the high blood pressure as the person who has the high blood pressure.

The psychosomatic concept of pathogenesis and clinical picture must impress us with the necessity for the total evaluation of the patient with hypertension. This requires more than lip service to the concept of the organism as a whole. It represents a combined physical and psychologic study. Such a study demonstrates that the psyche is one of the many important factors that enter into the etiology and pathogenesis of hypertension and that many of the symptoms occurring in hypertension are of emotional rather than physical origin. For such reasons incapacity often is out of proportion to the disease and therefore it will be found important in a great many patients to reeducate them along the lines of "carrying on" rather than to urge rest and more rest. Menninger [15] champions this idea on the basis that self-directed aggression may be turned outward by the authority of the physician and that extroversion of the aggression, if not too strenuous, may be of advantage to the patient. This was illustrated in case 1.

The knowledge that "every psychic tendency seeks adequate bodily expression" [16] gives a practical hint in dealing with hypertensive patients. An explanation to the effect that inner tension which cannot be released through ordinary channels (action or words) may manifest itself in the circulatory system by adding to the problem of hypertension represents a rational approach as far as the patient is concerned and often leads to a discussion of problems which are of considerable interest and importance from the standpoint of illness.

To advise the individual involved in mental conflict not to worry is of little value, especially when, as is so often the case, no concerted effort is made to find out what is disturbing him. Too often the physician is satisfied that there are no problems disturbing the patient after he has inquired "Are you worried about anything"? and has received a negative reply. Most of the time the patient really does not know just how much he is disturbed nor does he relate the factors actually responsible for his discontent. He is much more apt to project his worries into questions about his blood pressure, heart, brain and kidneys. Careful inquiry will bring out that his fears are exaggerated and that the reasons he assigns for them are illogical. There is only one approach that has any merit; that is, to encourage the patient to talk about himself as a person rather than as a medical case. Then we shall see that anxiety bears some relation to hypertension, that it, in turn, is related to the unconscious conflict in the personality of the hypertensive individual and that this conflict can often be treated, resulting in relief of anxiety. But, no matter how the anxiety is related to the hypertension, it is important to analyze and to try to remedy it because, if this factor is managed, the patient can easily become more effective and healthy even if the blood pressure level remains uninfluenced.

There is no objection to the effort to lower blood pressure as long as this does not constitute the sole approach to the problem of high blood pressure. Although the psychosomatic approach does not offer a complete solution of the hypertensive problem and does not even apply to all patients, it is a practical method of dealing with a set of important factors that may be modified, whereas the constitution of the individual cannot be touched. It is an approach heretofore not sufficiently practiced. We are too much concerned with physical measurements in hypertension—the blood pressure figures, the size of the heart, the electrocardiographic tracing, the amount of retinal sclerosis, the percentage of renal function, the urographic study—all of which are essential in the study of the hypertensive person but give incomplete information from the standpoint of the total evaluation of the patient. They should represent the beginning and not the end of the study. We have been too little concerned with the emotional life, which may hold the key to the satisfactory management of the hypertensive patient.

GENERAL SUMMARY AND CONCLUSIONS

The organic tradition in medicine has been responsible for a narrow (physical) view of the etiology, pathogenesis and treatment of essential hypertension. The psychosomatic approach does not neglect the physical problems involved but includes a consideration of the role of the emotions. It emphasizes the multiple factors in etiology and pathogenesis and attempts to evaluate the resulting composite clinical picture. Such studies indicate that the emotional component apparently is intimately related to the development of hypertension in some patients, to the production of symptoms in many others, and enters into the question of treatment in nearly all patients with this disorder.

Although all varieties of character and neurotic disturbances occur in hypertensive individuals, a common problem seems to be the presence of emotional tension due to chronic repressed hostility. This inhibited aggression (chronic rage) seems to bear a specific relationship to hypertension and, if it can be turned outward by means of psychotherapy, anxiety is diminished and blood pressure is often lowered. Even if blood pressure is unaffected, the treatment often benefits the patient by making him a healthier and more effective personality. Our objectives in treatment should be readjusted. We must do more than try to bring the blood pressure down. We must go beyond the physical aspects of hypertension to the personality of the hypertensive individual in order to be successful in the management of such patients.

269 South Nineteenth Street.

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ABSTRACT OF DISCUSSION

DR. ROY W. SCOTT, Cleveland: Dr. Weiss's paper emphasizes the well known influence that psychic factors may exert on the blood pressure levels, as well as the value of psychotherapy in the management of some patients; but it should be recalled that we have no evidence to show that disease of either the central nervous system or the vegetative nervous system is the cause of hypertension.

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OTITIS MEDIA AND MASTOIDITIS IN CHILDREN

A SURVEY OF 1,992 CASES

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The treatment of otitis media, with particular reference to the results of chemotherapy, has been the subject of extensive controversy in the past few years. The majority of recent reports [1] have been enthusiastic over the decrease in the duration and complications of acute suppurative otitis media under the influence of sulfonamide therapy. Many investigators believe that the decrease in the incidence of acute mastoiditis is a direct result of the increasing use of the sulfonamides. A contrary opinion has been expressed by many others.[2]

METHOD AND MATERIAL

This survey includes observations on all patients with otitis media and mastoiditis who have been admitted to the babies' wards of the New York Post-Graduate Hospital in the years 1931 to 1941 inclusive. In this period a total of 1,992 admissions with otitis media or mastoiditis were tabulated. In a small number of these patients otitis media developed after admission to the hospital, and others had two or more admissions for repeated attacks of otitis media or mastoiditis. We felt that a complete study of the cases of the last six years, 1936 to 1941, should be done because the greatest changes have occurred in this period. There are 932 admissions (773 patients) making up this group and they were studied with a view of determining the age, sex and seasonal variation from year to year, as well as the pertinent symptoms, physical signs, laboratory data, complications, treatment and end results. The 1,030 admissions in the preceding years 1931 to 1935 have been studied only from the point of view of diagnosis, treatment and end results in order that a base line might be obtained for variations in severity of these conditions from year to year.

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Owing to lack of space, this article has been abbreviated for publication in THE JOURNAL. The complete article appears in the authors' reprints.

Read before the joint session of the Section on Laryngology, Otology and Rhinology and the Section on Pediatrics at the Ninety-Third Annual Session of the American Medical Association, Atlantic City, N. J., June 12, 1942.

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AGE, SEX AND SEASONAL INCIDENCE

Fifty-three per cent of all patients were less than 3 years of age, the ages of the remaining 47 per cent being distributed from 3 to 14 years, the upper limit for admissions to our wards. Chart 1 shows the incidence of age by years. The boys admitted numbered 417 as compared with 357 girls, a ratio of 8:7. In the winter and spring, from December through May, 72 per cent of the cases were admitted and only 28 per cent in the remaining six months. The highest incidence occurred in March and April. Chart 2 shows the incidence of admissions by months.

SYMPTOMS

The symptoms noted are those of otitis media, mastoiditis and the commonly associated and complicating illnesses of the 932 children from 1936 to 1941. The origin of each symptom, whether from otitis media, mastoiditis or one of the commonly associated illnesses, is not particularly important because all are related to the same extent that the various illnesses are related. Naturally these symptoms can be considered part of a syndrome of which otitis media and mastoiditis are the main causes.

As might be expected, fever was the most common complaint, occurring in 67 per cent of all cases. An elevation of temperature was noted to be abnormal if it exceeded 101 F. The majority of these patients, however, had temperatures of 102 or more. The next most common symptom was aural discharge, whether unilateral or bilateral; 35 per cent of the 932 patients had aural discharge at some time in their illness, either from spontaneous rupture of the ear drum or from myringotomy. Of the latter group, 13 per cent had bilateral running ears and in 10 per cent it was confined to the left ear and in 12 per cent to the right ear.

Nasal discharge, or a "cold," as it was more commonly described, was complained of in 28 per cent and usually preceded the more severe symptoms by one to several days. Pain in the ear was noted in 27 per cent of the patients, being bilateral in 7 per cent. The importance of this symptom is not adequately emphasized by these figures because it is a complaint of older children only and cannot be well indicated by children under 3 years of age, who comprise more than half of our cases. In the older age group, therefore, the complaint of pain in one or both ears is of considerable diagnostic value.

Cough, which is usually part of the associated infection of the upper respiratory tract, was noted in 25 per cent of our patients. Previous ear trouble, either otitis media or mastoiditis, was found in 21 per cent of our patients and usually directed attention to the ears as the source of present illness. Vomiting, either once or repeatedly, usually early in the illness, was surprisingly frequent, in 18 per cent, while anorexia was of sufficient degree to be complained of in only 14 per cent. Diarrhea occurred in 9 per cent of cases during the course of illness. Sore throat falls into a category similar to that of pain in the ears in that it is a complaint of older children; hence its occurrence in only 6 per cent of our cases is somewhat misleading. Swelling behind

the ears, convulsions, hematuria, abdominal pain and nausea occurred in relatively few, the exact figures being shown in chart 3.

PHYSICAL SIGNS

The abnormalities that are found on physical examination in otitis media, mastoiditis and commonly associated illnesses were tabulated for the 932 cases from

Chart 1.—Age incidence in a series of 932 cases of otitis media and mastoiditis (1936-1941).

1936 through 1941. Chart 4 shows the relative frequency of these physical signs in terms of percentage of all patients noted to have each physical sign.

Naturally the ear drum is the site of the most frequently found abnormality, a diffusely red drum being seen in 85 per cent of all patients at some time during the course of the illness. The remaining 15 per cent of patients comprise the group with chronic and catarrhal otitis media, in whom a different type of ear drum is seen. Whether a single drum was involved or both drums was not recorded for this particular physical sign.

Aural discharge was found in 57 per cent of cases, this figure being higher as a physical sign than was noted for this as an admission symptom, because a number of patients had a myringotomy after admission to the hospital. Bilateral aural discharge was noted in 28 per cent. This particular physical sign is on the decrease because of diminished need of myringotomy since chemotherapy has been used. Injection of the pharynx and tonsils, when present, was noted in 50 per cent. Bulging of the ear drums, usually beginning in the posterior and superior quadrant, was noted in 46 per cent; 31 per cent of the patients were so acutely

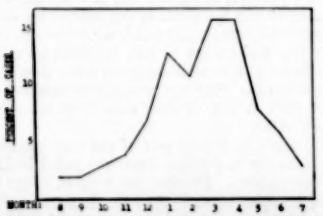

Chart 2.—Monthly variation in incidence in a series of 932 cases of otitis media and mastoiditis (1936-1941).

ill that special mention was made on physical examination. Postnasal discharge was of lesser frequency, 10 per cent, as was irritability, 9 per cent.

The percentage incidence of the physical signs of mastoiditis is deceiving because they have been calculated from the total number of patients rather than from the number of cases of mastoiditis, in order that they might have their proper perspective to the entire series of 932 cases. Tenderness over the mastoid was noted in 9 per cent, swelling in 8 per cent, redness in 3 per cent, fluctuation in 2 per cent, sagging of the external auditory canal wall posteriorly in 5 per cent.

LABORATORY DATA

A number of laboratory studies have been done but only a few are of value in this survey because they were done on a sufficient number of our patients.

A total of 782 blood counts, on a similar number of patients, were tabulated. When a patient was admitted with a diagnosis of otitis media or mastoiditis, the blood count on admission was tabulated. When otitis media or mastoiditis developed following admission for some other condition, the blood count at the height of the ear condition was tabulated.

As can be seen in table 1, in 65 per cent of cases there is a moderate to severe leukocytosis (over 10,000 white blood cells); in the majority of the remainder there is a normal leukocyte count. Similarly, there is an increase in the number of polymorphonuclear neutrophils, being over 60 per cent in 55 per cent of cases, which is particularly significant, since the majority of our patients are in a very young age group. Conversely, lymphocytosis (more than 60 per cent lymphocytes) is very uncommon, occurring in 10 per cent. Although an average of 41 per cent of patients had a red blood cell count under 4 million and 37 per cent had a hemoglobin content of less than 11 Gm., there has been a steady decline in the incidence of this moderate anemia in the past few years.

TABLE 1.—*Complete Blood Counts in a Series of Cases of Otitis Media and Mastoiditis*

	Percentage in					
	1936	1937	1938	1939	1940	1941
White blood cells						
To 5,000	0.6	0.5	0.6	0	6	0
5,000-10,000	42	20	30	26	32	24
10,000-15,000	31	48	42	49	37	41
15,000-20,000	16	15	14	6	13	16
Over 20,000	9	15	6	8	10	20
Polymorphonuclear leukocytes						
Less than 60%	33	28	24	22	30	30
More than 60%	54	58	46	53	52	69
Lymphocytes						
Less than 60%	23	24	17	19	22	12
More than 60%	9	8	10	12	12	2
Red blood cells						
Under 4 million	69	54	44	44	30	18
Hemoglobin						
Under 11 Gm.	55	55	39	40	33	25

Red blood cell sedimentation rates were done on 65 patients. Of these 13, or 20 per cent, exhibited a fall of less than 20 mm. in one hour, which is normal, and the remaining 80 per cent exhibited a fall of more than 20 mm. in one hour; 51 per cent exhibited a fall of red blood cells of more than 60 mm. in one hour.

Cultures for predominating organisms of aural discharges were done in 216 of our 932 cases. Although a variety of organisms could be isolated from cultures of material taken from the ear, the study was limited to three organisms—Streptococcus hemolyticus, Staphylococcus aureus and the pneumococcus or a combination of these. The same organisms were tabulated for cultures taken from the mastoid.

Table 2 shows the relative frequency with which pathogenic bacteria were found either in pure culture

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or in combination. Whenever one organism was found in one ear and another organism in the opposite ear, or two or more organisms were cultured from the same ear, the case was tabulated as presenting a combination of organisms. When only one organism was found in both ears in bilateral aural discharge, it was tabulated for that organism alone.

In 73 per cent of cultures from the ear only one pathogenic organism was present, fairly well distributed among the three: 29 per cent yielded Streptococcus hemolyticus, 25 per cent yielded Staphylococcus aureus and 19 per cent yielded the pneumococcus alone, usually not typed. When two pathogenic organisms were noted, the most common combination was Streptococcus hemolyticus and Staphylococcus aureus, found in a total of 15 per cent of all cultures from the ear. If the frequency of occurrence of each organism is considered, whether alone or in combination, there is the following shift in the figures: Staphylococcus aureus is most common, occurring in 54 per cent of all cultures from the ear, Streptococcus hemolyticus is next most common, in 48 per cent, while the pneumococcus is least common, in 31 per cent.

TABLE 2.—*Pathogenic Bacteria in Cases of Otitis Media and Mastoiditis*

	No. of Cases	Percentage
Ear cultures	268	
Streptococcus hemolyticus alone	75	29
Staphylococcus aureus alone	65	25
Pneumococcus alone	49	19
Strep. hemolyticus + Staph. aureus	40	15
Strep. hemolyticus + Pneumococcus	5	2
Staph. aureus + Pneumococcus	18	7
Strep. hemolyticus + Staph. aureus + Pneumococcus	6	2
Negative	10	3
Mastoid cultures	236	
Strep. hemolyticus alone	172	80
Staph. aureus alone	13	6
Pneumococcus alone	19	8
Mixed infections	4	2
Negative	8	4

The bacteriologic picture in mastoiditis is entirely different from that in otitis media alone. Pure culture of a single pathogenic organism is the rule, the same organism being found in both mastoids when the disease is bilateral. The overwhelming predominance of Streptococcus hemolyticus has led some observers to question whether any other organism is of etiologic significance, especially in acute mastoiditis. Streptococcus hemolyticus occurred in 80 per cent of cultures taken from mastoids, unilateral or bilateral, without any other organism being present. Staphylococcus aureus was present in pure culture in 6 per cent, pneumococcus, usually untyped, in 8 per cent. Two per cent of our cultures yielded different organisms in the opposite mastoids and 4 per cent of the cultures yielded no growth of any organism.

ASSOCIATED DISEASES AND COMPLICATIONS

The commonly associated diseases and the complications which sometimes result from or accompany otitis media and mastoiditis are shown in table 5. Heading the list is the common cold, which was present in 58 per cent of all cases, a total of 539 out of 932 cases. Acute pharyngitis, frequently associated with a common cold, was the next most common condition, in 438 cases or 46 per cent of the series. Pneumonia cannot properly be said to be a complication of ear infections, since the reverse is more liable to be the true picture. In 16 per cent of our cases pneumonia and ear infections were simultaneously present. Acute hemorrhagic glomerulonephritis occasionally develops during the acute phase of otitis media or mastoiditis and subsides when the ear infection improves. This was noted in 2 per

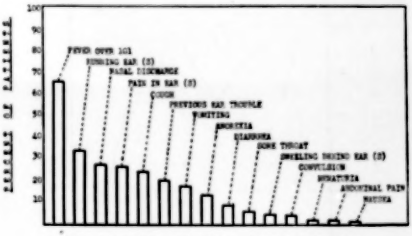

Chart 3.—Symptoms of otitis media and mastoiditis.

cent of our cases. Suppurative cervical adenitis, which is usually secondary to an acute infection of the upper respiratory tract, occurred in 41 cases, or 4 per cent of the series. Parenteral diarrhea occurred in 80 cases, or 8.16 per cent. This was confined to children under 2 years of age, and the majority were less than 1 year of age, so that the incidence among this particular group is considerably higher than the figures indicate.

Complications of mastoiditis comprise the remainder of table 5. Subperiosteal abscess or rupture externally through the cortex of the mastoid process occurred in 17 of the 308 cases of mastoiditis in this group, an incidence of 5 per cent. Von Bezold's abscess, or rupture internal to the tip of the mastoid process through the cortical bone, occurred in only 2 cases, or 0.6 per cent. Meningitis secondary to otitis media without mastoiditis occurred in 1 case; with mastoiditis it occurred in 2 cases. Lateral sinus thrombosis and brain abscess were noted in 3 cases each, an incidence of 1 per cent. Encephalitis developed in 2 cases of mastoiditis.

YEARLY INCIDENCE

That there has been a variation in severity and incidence of otitis media and mastoiditis from year to year can reasonably be taken for granted. Such variation

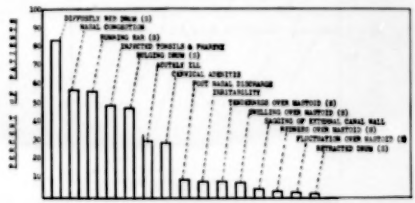

Chart 4.—Physical signs of otitis media and mastoiditis.

has been noted in most infectious diseases, and there is no reason to suspect that ear and mastoid infections are different. The extent of this variation, however, can be determined only by actual count of the number of such infections over a period of years. The variation in the eleven year period from 1931 to 1941 has been noted in chart 5. There one can see that from year

to year moderate variations occurred; there is a fall in 1940 which is greater than the fall in any previous year. From a total of 274 cases in 1931 and 249 cases in 1937 there is a decrease to 65 cases in 1941, a decrease to one fifth of the peak year—this in spite of a decided increase in number of cases of scarlet fever in 1941.

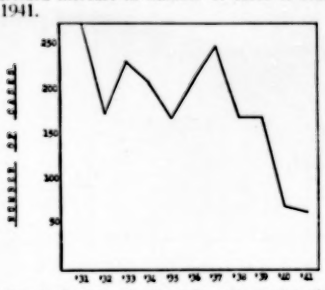

Chart 5.—Incidence of otitis media and mastoiditis (1931-1941).

A further breakdown of these figures, omitting catarrhal otitis media and chronic and recurrent mastoiditis, because they vary as do the more common forms, reveals that there has been a simultaneous decrease in hospital cases of acute purulent otitis media and in acute mastoiditis. A close inspection of chart 6 reveals that from 1931 to 1938 the ratio of acute purulent otitis media to acute mastoiditis approximates closely 2 or 3 to 1. For instance, there were 244 cases of acute purulent otitis media in 1931 to 121 of acute mastoiditis, 148 to 83 in 1932, 200 to 102 in 1933, 178 to 74 in 1934, 134 to 51 in 1935, 171 to 73 in 1936, 175 to 191 in 1937 and 97 to 37 in 1938. There is a sharp increase in this ratio from 1939 to 1941 for, though the number of cases of otitis media decreases, there is a much greater proportionate decrease in acute mastoidtis. There were 79 cases

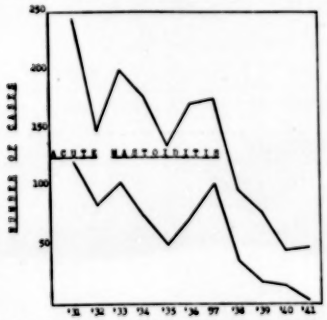

Chart 6.—Comparison of incidence of acute purulent otitis media and of acute mastoiditis (1931-1941).

of acute purulent otitis media to 19 cases of acute mastoiditis, a ratio of 4 to 1, in 1939, 46 to 11, a ratio of 4 to 1, in 1940 and 48 to 3, a ratio of 15 to 1, in 1941.

Theoretically there are three important factors that could account for these amazing changes in otitis media and mastoiditis in the past three years. The first is a decided decrease in the severity of otitis media and mastoiditis; the second possible cause is a radically improved form of therapy; the third possibility is a combination of decreased severity of the diseases in the presence of a more effective form of therapy.

In order to investigate whether there has or has not been a change in the severity of acute purulent otitis media and acute mastoiditis, we have compared the symptoms, physical signs and laboratory data of the 932 cases from 1936 to 1941 in a year by year survey. The symptoms and the relative frequency of each symptom of otitis media and mastoiditis were demonstrated previously (chart 3). A year by year breakdown of these symptoms is presented in table 3. The remarkable consistency with which these symptoms are found from year to year in the same order of frequency and in almost the same percentage of cases in each year indicates that there has been little change in symptomatology of otitis media and mastoiditis. There is usually, in each year, some one symptom which occurred much more frequently than in any other year, such as pain in the ears (1937), vomiting (1938) and nasal discharge (1940), but these are very exceptional. A comparison between the frequency in 1937, a peak year,

Table 3.—*Symptoms in Cases of Otitis Media and Mastoiditis*

	Percentage in					
	1936	1937	1938	1939	1940	1941
Temperature over 101 F.	64	49	72	62	86	71
Running ear (s)	39	48	37	33	39	29
Nasal discharge	27	23	21	25	53	20
Pain in ear (s)	39	46	24	24	33	41
Cough	30	17	26	26	30	29
Previous ear trouble	21	19	15	27	30	15
Vomiting	16	9	46	19	39	12
Anorexia	10	7	11	19	19	17
Diarrhea	11	4	10	10	17	3
Sore throat	4	2	4	10	8	10
Swelling behind ear (s)	7	9	3	6	4	4
Convulsion	2	3	7	2	7	0
Hematuria	0	1	2	4	3	3
Abdominal pain	1	0	2	5	0	3
Nausea	1	1	0.5	0	7	0

and 1941, the lowest year, reveals practically identical figures for each symptom. Certainly on this basis one cannot claim that there has been a decreasing virulence of the diseases in the last few years.

The physical signs of otitis media and the relative frequency of each physical sign are demonstrated in chart 4. A year by year breakdown of these physical signs is presented in table 4. There is the same relative frequency of each physical sign, with few exceptions, from year to year as is found in chart 4. The one physical sign that shows a persistent variation in the last few years is aural discharge. This has decreased because myringotomy is now much less frequently done than it was five or six years ago. Comparison again of the peak year of 1937 to the low year of 1941 reveals very little variation in frequency of each physical sign. On this basis too one cannot claim that there has been a decreasing virulence in otitis media and mastoiditis in the last few years.

Laboratory data have been broken down in two ways. Complete blood counts were studied in a year by year survey (table 1), while pathogenic bacteria in cultures taken from the ear and mastoid were studied from the point of view of the incidence of the particular organism in the group of patients treated without the sulfonamides and the group of patients treated with the sulfonamides (1937-1941).

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A breakdown of the blood counts year by year reveals that a leukocytosis (more than 10,000 white blood cells) was most pronounced in 1937 and 1941 but that the variation in other years was not very great. Similarly, polymorphonucleosis was greatest in 1937 and 1941, but in the other years it did not vary greatly.

A comparison of the frequency with which the various pathogenic bacteria occurred in otitis media and mastoiditis in the group treated with the sulfonamides as opposed to the group treated without the sulfonamides is presented in table 6. The incidence of the three common pathogenic organisms through the period of 1937 to 1941 is almost identical in each group for both otitis media and mastoiditis. These figures differ slightly from those presented in table 2 because the latter includes cultures taken in 1936, which was excluded in the present breakdown because only 1 patient received sulfonamide therapy in that year. Unless it is assumed that the organisms in the cases under treatment with the sulfonamides were less virulent than similar organisms in the cases in which the sulfonamides were not given, it seems clear that this factor is ruled out. There is no reason to make such an assumption.

TABLE 4.—*Physical Signs in Cases of Otitis Media and Mastoiditis*

	Percentage in					
	1936	1937	1938	1939	1940	1941
Diffusely red drum (s)	90	88	88	76	71	80
Nasal congestion	50	39	48	60	86	66
Running ear (s)	82	78	47	51	40	49
Injected pharynx	44	40	28	54	71	65
Bulging drum (s)	43	42	35	36	56	60
Acutely ill	35	25	32	28	41	21
Cervical adenitis	22	15	21	35	39	48
Postnasal discharge	7	7	5	12	17	12
Irritability	4	3	9	12	25	1
Mastoid tenderness	5	15	9	9	11	7
Sagging posterior wall	7	6	3	3	10	4
Redness over mastoid (s)	5	0.5	4	3	3	4
Fluctuation over mastoid	0.5	0.4	2	3	3	3
Retracted drum (s)	2	0	0	1	2	0
Mastoid swelling	7	15	11	7	7	3

On the basis of the fact that over a period of the last six years there has been no significant change in the symptomatology, physical signs and laboratory data, the inescapable conclusion follows that there has been no decrease in the severity of otitis media and mastoiditis in this period. This rules out the first and third possible premises, namely, a decrease in severity of the disease and, second, a decrease in the severity of the disease plus improved therapy for the decrease in incidence of otitis media and mastoiditis.

It seems apparent, then, that an improved form of therapy alone is responsible for the recent changes in otitis media and mastoiditis. A survey of the treatment of otitis media and mastoiditis, therefore, was the next problem under consideration in order to determine what significant changes in therapy have occurred in the past eleven years. The results are recorded in table 7.

Ear drops, as a form of therapy, have not been very popular at any time in hospital practice. Nose drops, particularly 1 per cent ephedrine sulfate in isotonic solution of sodium chloride, mild protein silver solution and more recently 0.25 per cent neosynephrin, have been increasingly popular.

Early myringotomy has been considered by some otologists as one of the most valuable forms of therapy in otitis media. Some excellent studies of large numbers of patients tend to indicate that the incidence of mastoiditis is less in patients with otitis media who receive myringotomy. Despite these facts, table 7 shows that there has been a progressive decrease in the frequency of myringotomy, from a peak of 60 per cent in 1935 to a low point of 10 per cent in 1941. This decrease cannot be attributed to a change in the severity of the disease, because it has already been demonstrated that by all possible criteria otitis media and mastoiditis are no less severe than they were in the past. None the less, with myringotomy done far less frequently, mastoiditis continues to decrease.

TABLE 5.—*Associated Diseases and Complications in Cases of Otitis Media and Mastoiditis*

	Number of Cases in						
	1936	1937	1938	1939	1940	1941	Total
Common cold	106	98	81	102	61	43	539
Acute pharyngitis	93	101	47	92	51	44	428
Pneumonia	42	41	25	23	14	4	149
Glomerulonephritis	4	1	0	9	1	3	18
Suppurative cervical adenitis	17	9	5	6	3	1	41
Parenteral diarrhea	22	10	17	17	12	2	80
Subperiosteal abscess	2	3	5	2	3	2	17
von Bezold's abscess	1	0	1	0	0	0	2
Meningitis from otitis media	0	1	0	0	0	0	1
Meningitis from mastoiditis	1	1	0	0	0	0	2
Sinus thrombosis	0	2	0	1	0	0	3
Brain abscess	1	2	0	0	0	0	3
Encephalitis	0	1	0	0	1	0	2

Irrigations of the ear three or four times daily with saline or boric acid solution have frequently been used in the treatment of purulent otitis media. However, in recent years this method of therapy has been gradually abandoned. In 1937 it decreased sharply and has not been in common use since that time. Tonsillectomy and adenoidectomy and sinusotomy in the treatment of otitis media and mastoiditis have been confined almost entirely to the cases of chronic involvement and are not of significance in our study.

The incidence of mastoidectomy reflects fairly accurately the incidence of mastoiditis itself and decreases in proportion to the total number of cases in any one year. Mastoidectomy is even more frequent than mastoiditis in a few years (1932, 1933) because of mistaken diagnosis in some cases and also because it was the vogue at that time to resort to this surgical procedure if a so-called parenteral diarrhea did not respond to medical treatment—this very often in the absence of signs of actual mastoid disease.

TABLE 6.—*Pathogenic Bacteria in Cases of Otitis Media and Mastoiditis (1937-1941)*

	Treated Without a Sulfonamide, per Cent	Treated with a Sulfonamide, per Cent
Otitis media (257 cultures)		
Streptococcus hemolyticus alone	26	35
Staphylococcus aureus alone	24	16.5
Pneumococcus alone	19	17.5
Mixed	30	31
Mastoiditis (135 cultures)		
Streptococcus hemolyticus alone	73	67
Staphylococcus aureus alone	10	13.3
Pneumococcus alone	11	13.3
Mixed	1	6

The use of the sulfonamides in the treatment of otitis media and more recently of early mastoiditis in addition

has gradually gained prominence in the past six years. In 1936 only 1 patient received such therapy, an incidence of 0.4 per cent. In 1937, 13 per cent received sulfonamide therapy but many of these only after mastoidectomy had been performed. The latter group has been discarded from our statistics on sulfonamide treated patients. After 1938 the percentage of sulfonamide treated patients rose rapidly, reaching 77 per cent in 1941. This is shown in chart 7. In 1942, although not included in this study, practically 100 per cent of the patients have received the sulfonamides.

In 1937, 1938 and 1939 sulfanilamide was the most commonly used sulfonamide derivative, with only an occasional patient receiving azosulfamide or sulfapyridine. In 1940 sulfathiazole was used in increasing amounts and in 1941 sulfadiazine was used to a small extent, the latter two drugs replacing sulfanilamide entirely in the treatment of otitis media. Treatment was considered inadequate if a patient did not receive approximately 1 grain (0.065 Gm.) of a sulfonamide per pound (454 Gm.) of body weight in a twenty-four hour period and if the drug was not continued for a minimum of three days. The few cases that fell in the

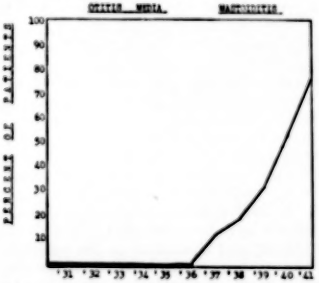

Chart 7.—Treatment of otitis media and mastoiditis with the sulfonamides.

group of the inadequately treated have been arbitrarily discarded from our statistics. Although we have not had a complete breakdown of our statistics of 1941 and 1942, it is our impression that sulfathiazole is definitely the drug of choice, with sulfanilamide and sulfadiazine about equal but secondary choices in the treatment of otitis media and early mastoiditis. In 1942 (not included in this study) approximately 60 patients have been treated with the sulfonamides, sulfathiazole and sulfadiazine being used in an equal number of cases. It may be of significance to note that no child who received sulfathiazole developed mastoiditis, whereas 2 of the patients who received sulfadiazine developed surgical mastoiditis.

Comparison of patients adequately treated with the sulfonamides with those treated without sulfonamides from 1937 to 1941 is presented in table 8. A total of 162 patients received adequate sulfonamide therapy, of whom 15, or 9 per cent, developed acute mastoiditis and required mastoidectomy. A total of 506 patients with similar conditions in the same period were treated in the usual way but without the sulfonamides, and 156, or 30 per cent, developed acute mastoiditis and required mastoidectomy. A breakdown of these figures reveals that mastoiditis was less frequent in the sulfonamide treated group than in the group treated without the sulfonamides in every single year. It is of interest to note, however, that a total of 151 cases were studied in 1939 and that the results in the two groups are almost identical. This number of cases over an entire year might ordinarily seem to be an adequate study, but in the light of the remaining years it is obvious how misleading such a survey would be in as large a subject as otitis media and mastoiditis.

TABLE 7.—*Treatment of Otitis Media and Mastoiditis*

	Percentage in										
	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940	1941
Ear drops	1	1	1	0	1	2	0.5	1	22	35	1
Nose drops	11	13	15	14	14	53	41	47	70	62	33
Myringotomy	55	52	45	55	60	45	35	29	20	25	10
Mastoidectomy	44	58	52	43	39	35	39	21	13	17	5
Irrigations of the ear	39	41	44	..	..	35	27	7	2	5	8
Tonsillectomy and adenoidectomy	..	..	..	..	..	4	3	3	5	3	3
Sinusotomy	..	..	..	..	..	0	0.4	0	1	0	0
Sulfonamides	0	0	0	0	0	0.4	13	20	33	54	77

From these figures, it is clear that the sulfonamides have played the dominant role in the amazing changes that are occurring in otitis media and mastoiditis.

Our present routine for otitis media is to give the patient sulfathiazole shortly after admission to the hospital, the dosage being 1 grain per pound of body weight in a twenty-four hour period, divided into six equal doses. A complete blood count and urinalysis are done before the drug is started. Urinalysis is done daily and a blood count every other day during therapy. Nose drops, either 1 per cent ephedrine in saline solution or 0.25 per cent neosynephrin solution, are given to relieve the associated nasal congestion. Pain in the ear, when present, subsides within six to ten hours even though no change is seen in the ear drum. Full dosage is continued for four days after the temperature has returned to normal or two days after aural discharge, when present, ceases. Then two thirds of the original dose is given until the ear drum has approximated a normal appearance. The sulfonamides are given for a minimum of seven days and usually not longer than fourteen days.

TABLE 8.—*Acute Mastoiditis in Cases Treated With and Without Sulfonamides*

	1937	1938	1939	1940	1941	Total
Sulfonamide treated	10	32	51	32	37	162
Mastoiditis after sulfonamide therapy	1	4	5	4	1	15
No mastoiditis after sulfonamide	9	29	46	28	36	147
Percentage mastoiditis	10	12	10	12	3	9
No sulfonamide therapy	309	137	100	33	27	506
Mastoiditis, no sulfonamide	109	33	12	8	3	156
No mastoiditis, no sulfonamide	199	104	88	25	24	350
Percentage mastoiditis	48	25	12	25	9	30

When the patient enters the hospital with pain or tenderness over the mastoid, the same procedure is followed but an emergency roentgenogram of the mastoids is taken if the patient is over 1 year of age, in an attempt to discover whether degenerative changes have occurred in the bone. If there is no degeneration, the condition usually subsides without surgery but must be watched carefully and another roentgenogram taken to determine whether mastoiditis has been masked. If degenerative changes are already present in the mastoid, sulfathiazole should be given but mastoidectomy will probably be necessary.

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SUMMARY AND CONCLUSIONS

1. Over an eleven year period 1,992 children with otitis media and mastoiditis were admitted to the babies' wards of the New York Post-Graduate Hospital.

2. The 932 cases in the last six years, 1936 to 1941, were studied in great detail as to age, sex and seasonal variations, the symptoms and physical signs of otitis media and mastoiditis and the relative frequency of each.

3. A year by year breakdown of symptoms, physical signs and laboratory data reveals that there has been no decrease in the severity of otitis media and mastoiditis in the last few years.

4. There has been a decrease in the reliance of irrigations of the ear and myringotomy in the treatment of otitis media.

5. A comparison of the group of patients treated with sulfonamides against the group treated without sulfonamide from 1937 to 1941 shows an incidence of mastoiditis of 9 per cent in the former and 30 per cent in the latter.

6. Sulfathiazole is the drug of choice. One grain per pound a day is the recommended dosage.

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ABSTRACT OF DISCUSSION

DR. VINCENT DE P. LARKIN, New York: I have one word to add, which Dr. De Sanctis did not have time to speak about, namely the final breakdown of our cases into a group of control and sulfonamide treated from 1937 through 1941. Patients with acute otitis media who did not receive sulfonamides had an overall incidence of mastoiditis of 30 per cent. Through that same five year period, similar cases treated with sulfonamides had an overall incidence of mastoiditis of 9 per cent, and actually in the last year our incidence of mastoiditis fell to 3 per cent in the sulfonamide treated group. We feel that this control series as opposed to the sulfonamide treated series proves fairly conclusively that the one responsible agent which has produced these remarkable changes in the incidence of mastoiditis is chemotherapy.

DR. ADOLPH G. DE SANCTIS, New York: Sulfathiazole is our drug of choice, and we use about 1 grain per pound daily divided into six doses. I think it is important to stress that the sulfonamide drugs should be continued for at least four days after all symptoms and signs have disappeared. They were not included in this study, but the cases admitted in 1942 to our wards represent about 60 children. About 30 of those received sulfathiazole and about 30 received sulfadiazine. No child who received sulfathiazole developed mastoid disease. Two who received sulfadiazine did. That may be a coincidence, but it strengthens our impression that sulfathiazole is the drug of choice.

Cardiac Murmurs.—The stethoscope did not dispel the notion that all heart lesions were serious. To a certain extent it augmented it. The murmur revealed by auscultation became a bugbear; it was misinterpreted as meaning a damaged valve and as ominously threatening an early death. This was the impression made upon me by the teaching in the medical school in 1888. Though functional, hemic, accidental and meaningless murmurs were written about, only too often the physician spread gloom as he warned the parents of the presence of the murmur that threatened disaster. No wonder that Mackenzie later indignantly inveighed against the prevailing interpretation of the systolic murmur and declared the stethoscope to be not an instrument of precision but of error. The fault, however, was really in the brain of the listener and not in the instrument.—Herrick, James B.: A Short History of Cardiology, Springfield, Ill., Charles C Thomas, 1942.

THE WARTIME CONTROL OF VENEREAL DISEASE

PROBLEMS IN THE APPLICATION OF RECENT SCIENTIFIC DISCOVERIES

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The venereal disease control field is a perpetual Christmas pudding and full of surprises. As Little Jack Horner (whom I may be supposed to impersonate for this occasion) puts in his thumb and pulls out a plum, with his well known expression of egotistic self satisfaction, little does he realize that his find will presently be shown to be a raisin or even a California prune, and a dried one at that. In fact, to extract even prunes from the assigned pie, Jack has had to ask permission, first, to talk about problems rather than solutions and, second, to include some new and surprising developments from old discoveries. I propose to discuss four groups of problems: those of the recently discovered fallibilities of the case uncovering or diagnostic methods, the problems of foreshortened treatment, the problems of prophylaxis and the influence of ultraeffective treatment on morale and the future of venereal disease and the sex life.

THE FALLIBILITIES OF THE UNCOVERING MECHANISM

The serologic tests for syphilis have recently been subjected to heroic reevaluation. Formerly used for the examination of the sick, and to a large extent for those in whom some suspicion of the need for it actuated the doing of the test, the negative result was first shown to have a margin of unreliability that made it unable to stand alone or without repeated confirmation by laboratory and clinical examination. The positive received a rising vote of confidence. The past five years, the era of the Wassermann barbecue and the wholesale application of serologic tests to large groups of the well, have now shown the positive test, no matter by what methods or how rigorously performed, to have a margin of nonspecificity of disturbing proportions. The presence of syphilitic reagin in normal persons; its rise and fall under drugs, diseases and unexplored factors; the uncertainty as to its whereabouts, mode of generation and actual nature; its absence in undoubted syphilis with characteristic manifestations; the anxious attempts to define by such methods as verification tests, so called; by quantitative procedure; by spirochetal antigens, including even the Reiter strain, whose superior specificity approaches the ludicrous when men of the experience and caliber of Kolmer suspect it of being Treponema macrodentium, a mouth spirochete, and not Treponema pallidum at all; all these considerations and many more have given the thoughtful observer a real case of serojitters. Imagine the plight of the practitioner, the examiner passing on selectees, and the syphilologist, as the list of diseases known to be responsible for the appearance of reagin-like substances in the blood grows and grows, and the time after their occurrence in which false tests remain positive stretches from days to years. No longer is it possible to take refuge behind the belief that mere oversensitiveness of test procedure is responsible for the decline in reliability

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From the Institute for the Control of Syphilis and the Department of Dermatology and Syphilology, University of Pennsylvania School of Medicine.

of the positive report. It is true that the wholesale use of screen tests, even the best recognized of which have their slippery edges, has led to confusion, not wholly corrected by the performance on positive serums, of one of the basically more stable procedures. But the trouble lies deeper than that—as deep as our ignorance of the nature and identity of the syphilitic reagin and its congeners, and that ignorance is profound indeed. The serious search for the substance suspected of being a serum protein or globulin fraction is now on under the auspices of National Research Council supported investigations, armed with chemical fractionation of plasma or serum and with Tiselii—a word to conjure with. One might suggest that the "reagin" may turn out to be anything but a substance—rather a relationship or variable balance or proportion between substances or fractions, or a mode of reaction at varying concentrations and electrolytic conditions. But whatever it is, it must now be found if we are to filter out the dross from our years of confidence in serologic tests for syphilis.

Is it really as bad as that? Well, hardly ever. I still presume to believe that there is some common sense that will produce at least a common denominator for the situation. Let us attempt one.

The blood test for syphilis has always been recognized as unfit to stand alone; it is a reproach to use it as a sole basis for treatment; it cannot decide either way the question of infectiousness ever. There then goes much of its public health significance. In the absence of clinical signs of syphilis it has at the most discovered only latency. That and congenital infection is, at least as I have been observing it, overwhelmingly the harvest of its wholesale use to determine physical status and fitness anywhere. It is strongly, repeatedly and incontrovertibly positive by any reliable or so-called standard method of performance, early in the disease though not quite at the start. The seesaw of weak positives and conflicting laboratory and varying method reports has been shown subject to confirmation, to be largely technical stuff. It is strongly positive, or there are strong positives in a series, in asymptomatic neurosyphilis as a rule. The relatively rare exceptions are, like late tabes, brain gumma, and so on, accompanied by diagnostic signs. Liver, spleen, bone, eye, gastrointestinal tract lesions and congenital infections are apt to be inescapably positive. If they are not, something is seriously wrong with the laboratory. The syphilis most likely to escape a serologic uncovering mechanism backed by reasonably competent examination is that of the pregnant woman, especially the multipara, and the early cases of syphilitic vascular and cardiovascular disease. The fluoroscopic examination of the heart and great vessels and the spinal fluid examination can prevent casual misinterpretation of serologic positives or negatives, whether they represent latency or progression, in the large majority of cases. The positive diagnosis of syphilis can, then, be made safe. Its elimination, however, once the suspicion is aroused by a test, has always been difficult and probably will long remain so. Certainly even with our present armament of tests and examinations, x-ray and spinal fluid included, one hesitates to tell a person who has chalked up a strong serologic suspicion or a woman who, facing marriage and pregnancy, has chalked up a weak one, not to take treatment. They had better treat for life insurance. While we are searching for the ultimate reagin key to the situation, then, let us remember that most syphilis is latent. The age of the latency tends to be proportionate to the age of the individual, syphilis being a disease acquired in youth. Early latency should be vigorously, and later latency in middle life should be moderately treated. The issue thus becomes one of implementing a policy, for no person with syphilis, latent or otherwise, should be put in a position where he is denied treatment. Persons with latent syphilis are competent, and treatment does not interfere with an acceptable level of efficient performance. What to do about latent syphilis thus becomes a question of the value to the particular occasion of the particular syphilitic person and of his effective placement. Most of the occupational discriminations, except for domestics, are bosh. Is he worth the treatment he should be given? On the yes or no to that, in the individual case, answered by the Army, the Navy, the public health or other authority, the question of what to do with syphilis in availables ends.

The serologic tests for syphilis are not the only ones that disturb. There is reason to suspect that there has long been a serious margin of error in darkfield identification of the organism by the inexperienced. Mahoney has said that at mouth and anus Treponema pallidum and Treponema macrodentium are indistinguishable. After seeing some of what purports to be Treponema pallidum in current moving pictures, one begins to wonder whether the only real one is that observed by dark field from lymph nodes and from scraped papules on the glabrous skin in undoubted secondary and recurrent eruptions, to whose diagnostic value we have repeatedly called attention. Nonsyphilitic endourethral and gastrointestinal spirochetes have appeared on the investigative horizon to disturb such fundamental hypothetical conceptions as the infectivity of semen and the identity of syphilitic gastric ulcer. It is therefore a question whether the tremendous cost of equipping every clinic, however inexperienced its staff, with darkfield apparatus is worth while; whether even urologic clinics should have darkfield equipment at all; even whether daily serologic tests by a sensitive technic do not identify the disease soon enough. Such indeed is reputed to be the practice at a number of points. Granted quarantine control of the infectiousness of the individual during the seronegative phase of a developing infection, the feeling is understandable that one would rather postpone treatment until one is sure, than begin on untrustworthy darkfield evidence. But is one surer with a single positive blood test? The greater treatability and curability of the disease before serologic tests become positive is now so far established both for old and foreshortened new methods that an adequate darkfield diagnostic setup is still to be desired. One might rather treat for syphilis a patient with a lesion in which the organisms found by a not too inexperienced examiner are probably Treponema pallidum than to take all the chances involved in waiting for a delayed serologic diagnosis. When in addition to experienced judgment lymph node and lesion aspiration and other refinements are possible, the trustworthiness of the darkfield procedure increases greatly. This, then, is an argument for the laboratory or clinical diagnostic center, where expertness can be concentrated rather than for the dispersed station or small clinic distribution of darkfield facilities.

The diagnosis of gonorrhea is not in my field, but the presence of some serious perplexities there is apparent to any one. Smear diagnosis with an accuracy of 7 to 30 per cent, especially in women, and cultural diagnosis 12 to 60 per cent, leaves much to be desired.

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The Micrococcus catarrhalis revisions in our conceptions of vulvovaginitis in children are good illustrations of how far we have gone wrong in microscopic identification of gonorrhea in the past.

I am unable again to argue the minutiae of such points; but when an authority can say that it is impossible to determine whether a woman is or is not a carrier of gonococci, it is clear that the reservoir problem for this disease is unsolved; and the immediate question seems rather one of how safe it is to treat every woman who is running a risk rather than every one who demonstrably has the disease. Again, as in syphilis, suspicion and presumption are tending to outstrip diagnosis and certainty. It becomes the easier to adopt this point of view, in both fields, as treatment becomes simpler and safer and shorter, and the pressure for and urgency of control in an emergency situation becomes more intense.

FORESHORTENED INTENSIFIED TREATMENT

Foreshortened treatment for syphilis is no novelty. For years the patient and the doctor have been practicing it in the form of the few weeks or months of arsenical and heavy metal treatment so generally employed in the average case over two of the decades since 1911. It has in recent years become apparent, and the principles should be borne in mind in interpreting all foreshortening and intensification plans, that:

1. Syphilis cures itself or at least comes to seropositive arrest with little damage, in an unknown percentage of cases, probably ranging around 40 to 50 per cent.

2. A relatively small amount of treatment, if it does not of itself bring on relapse in one form or another, through disturbance of the defense and immunity reactions, is capable of raising the expectancy of cure to an unknown but considerable degree. In seronegative primary syphilis this may well be guessed to be as high as 70 per cent, to judge by the good results so widely reported for the now out of date "abortive cure" systems.

3. Any system, no system, and even no treatment at all in syphilis has a running start toward cure, then. The intensification and the prolongation of treatment that expresses itself in 1,200 milligrams in five days or thirty arsenical and sixty bismuth injections in eighteen months is directed at a relatively small segment of unpredictably resistant infections. These resistant infections will either (*a*) maintain the reservoir of infective disease by relapse, (*b*) be responsible for infected children or (*c*) lead to serious consequences, especially in the cardiovascular and nervous systems of adults.

4. Any new systems proposed should be judged basically by their ability (*a*) to equal or surpass the "curative" expectancy of the old ones, (*b*) to lead to less infectious relapse, (*c*) to cure more mothers and protect more children, (*d*) to reduce the incidence of cardiovascular and neurosyphilis and (*e*) by their relative risks to the patient.

5. For the evaluation of a system, time and observation are necessary to establish reduction of or absence of relapse and progression. For the former, two to four years, for the latter, up to ten years is a reasonable observational requirement. For decision on relapse the patient must be repeatedly and frequently observed, for it is a come and go affair. For the evaluation of "cure" from a decade to a lifetime the longer the better is required.

6. A system which under such scrutiny has shown itself at least equal to its predecessors may then proceed to claim additional advantage and support for a variety of reasons, including cheapness, rapidity, controllability of the lapse factor because the whole job is finished in a short time, aid in the widening of availability of treatment by making possible the treatment of more persons per unit of time, personnel and equipment. Such considerations are in the main secondary to those of control of infectiousness and real curative power.

7. If the new system equals the old or surpasses it in all these particulars it has but one more hurdle to make before achieving priority. While *primum non nocere* is losing some of its meaning in a war torn world, there are still arch conservatives who are inclined to examine critically the bad effects, the complications of a system. Of real importance to the victim are the risks involved, the chances of damage or of death from treatment in the case of a disease which with none or very little treatment gives the victim at the outset a 40 to 70 per cent chance of escape from serious consequences. If an equal chance of escape with an older method offering less risk exists, only the most cogent reasons and a free choice by the patient justify the selection of the more dangerous method.

What is an experimental method? A method remains in the experimental zone, syphilotherapeutically speaking, (*a*) until everything that can be found out on animals has been found out, including the direct effects on both the disease and its carrier, of the method itself, actually applied. While the results of trial on animals may prove disappointing, equivocal and for various reasons inapplicable to man, methods must be tried on animals to see whether the results are interpretable or not. (*b*) The method must next be applied to man, using the lessons learned from animals. (*c*) When thus applied the method must now show its morbidity and mortality for man clearly and unmistakably, and (*d*) its efficiency in man must be judged by the criteria enumerated.

Some experiments must use man as the guinea pig, for animal methods are not applicable, and most methods must have their final experimental test on man. It is unfortunately true that shortcutting, from lack either of ingenuity or of facilities, or from a disposition to rush results is common and increasing practice. In times of emergency the delays of animal study may be critical.

The test on man will gain in significance to some extent with increasing numbers, but more with repeated cold evaluations. Cold evaluation, experience shows, is a secondary not a primary characteristic of the clinical mind. From this fact derives the deflation which most enthusiasms for agents and methods gradually undergo. It is therefore not intrinsically improper or evidence of a jealous nature or a sour outlook to oppose the modest exuberances and enthusiasms of discoverers with searching questions as to procedure and the establishment of fundamental facts. To label a method as a result of such questionings "still experimental" is not to damn it or even to discourage its use whenever and wherever patients and their sponsors are, after a frank exposition, disposed to accept it. There is precedent for volunteering and there is at the other extreme such potential abuse of volunteering that malpractice law interpretation even provides that the patient in some situations shall not be held to a decision as to the propriety of a procedure which may risk his life and health. I take the discussion of intensified treatment for syphilis this far into the philosophy of new methods,

because the phrase "still experimental" used in connection with such systems has aroused bitter acrimony and feeling prejudicial to the interpretation of the merits of the procedures. That they have merits no sane person can deny. That they will probably, with improvements suggested by the experimental work on animals that should have been done long ago, and further improvements suggested by the not always inevitable use of man as the experimental animal, be important, even preferred procedures in the future, any experienced mind will concede. That these methods or any one of them can now be tried out on as large a scale as any authority, civil or military, which can offer human beings for a pretty well tested but still experimental venture desires is also self evident. To be specific, if the Navy, which established a precedent in the displacement of complement fixation in diagnosis by the Kahn test, should now wish to displace an old and by its own records very safe if long drawn out treatment procedure with a short and less finally evaluated one, it should do so, assuming the responsibilities involved. But if an organization like the Army should say to an advisory group "We do not wish to be placed in the least danger of being accused of using the authority we have over the lives of men to subject them to experimental procedure" then the advisory group has no recourse other than to say that foreshortened intensified treatment, and especially the five day massive dose method, is not as yet fully evaluated, is still an experimental procedure and must in all probability be further modified to do away with serious objections, retaining its undoubted values as far as possible unimpaired.

Let us now try to bring this problem of foreshortened intensified treatment methods down to earth by a summary of pros and cons, which unfortunately I have not been able to reduce to the deadly parallel column because of the multiple modifications involved.

First, let us recall that intensified treatment was proposed for the management of early syphilis, a critical problem, none more so from the individual and public health standpoint, but only 12 to 20 per cent of the whole treatment problem in its proportion to the great mass of latency which is the bulk of the people's syphilis. In emergency situations, in which for defensive purposes large blocks of persons must be provided with maximum treatment for protective or "insurance" purposes, intensified methods might be the most useful but have been the least applied. They would probably too involve the greatest risk.

But since latent syphilis is the least dangerous aspect of the disease from any standpoint, and generally conceded to be much overtreated, the wholesale application of an ultraintensive method to this less serious 70 to 80 per cent of the problem, with greatly increased mortality risks, hardly seems a desirable approach. The only situation which compares closely with that of early syphilis in urgency is that of the pregnant woman. For her, on the other hand, increased mortality risk by intensive treatment may mean two deaths instead of one; and it has quite generally appeared from various studies that comparatively little instead of much treatment, if begun before the fifth month, is adequate for the protection of the child. The pregnancy itself is even likely to reduce the ultimate seriousness of the disease for the mother. It would seem then that there is real doubt whether there can be any justification, except when the infection is discovered late in the pregnancy, for the treatment of pregnant women by ultraintensive technics. There has been some reason to believe that the capillary system of the brain and the hemopoietic mechanism, both subject to idiosyncratic types of reaction to the arsenicals in man, are more rather than less susceptible in pregnancy and hence provide the fatal treatment reactions.

Now let us ask ourselves Just what is gained by concentrating an entire course of drug therapy into a few days as compared with a few months or years? Is there a more rapid extinction of surface spirochetes and quicker rendering of the patient noninfectious by rapid than by slow methods? Apparently not, for the disappearance of spirochetes within twenty-four hours follows the administration of small or normal doses of mapharsen by any technic. Do spirochetes reappear less promptly or less often in recurrent or relapsing lesions after rapid than after slow methods? Apparently not; the proportions of mucocutaneous relapse, 5 to 15 per cent, are apparently much the same in the two. It occurs most frequently in the second to the fourth month after intensive therapy and after the close of treatment (second year) or during inadequate or irregular treatment in slow methods. The prolongation of treatment may defer the relapse tendency, but intensification does not greatly reduce it apparently. In fact, here again the disease seems to assert its biologic rights over all variations in the mode of treatment. Those who will relapse will relapse. No time or frequency is saved by either method.

But the leading time argument involved in intensification runs somewhat as follows: We have our hand on the patient today. If we can put into him in five days sixty-five weeks of treatment, think of the time we have saved. (Think too, of course, of the lead we have on the disease, if the patient is a lapser, disappearing after taking only a fraction of what we planned to give him in the longer time. He is committed willy-nilly. But of that presently.) Examining the time question, the man hours, involved in treatment by rapid and slow methods, we find sixteen and one-half days estimated as the time lost in treating a sailor for a fresh syphilis by the long schedule and fifteen days by the short schedule, the latter including the tests for fitness to receive and the time required to recover to working capacity after the new treatment. This is hardly the time saving of 90 per cent recently claimed by the most vocal advocate of the fast school. It comes nearer being 10 to 50 per cent. Even estimating that a clinic patient loses a half day each time he takes a treatment, the total is thirty-two and one-half days for a long course, not sixty-five weeks as one might picture it. And with properly placed and timed clinic or private facilities, including night clinics, the man-hour cost of the long system can be ironed down still further. There is, then, something deceptively glamorous about this time saving business. What is being advocated is not so much real time saving as the appeal expressed in "Come and have it over with."

It is contended that "CHIOW"—"Come have it over with"—will do away with the burdens and deficiencies of case holding (follow-up), the shortcomings in adherence to treatment alleged to be so general, and will get into the patient disposed to lapse, for once and all, what he needs for his cure. On examination of this conception it too is seen to contain some criticizable elements. First, it is implied that observation and case holding cease to be so necessary once the treatment is undergone. They are being performed for scientific purposes, perhaps. As a matter of fact, unless the patient is fol-

lowed as consistently in the one system as the other, recurrence and relapse, pregnancy and its problems, and the slow onset of cardiovascular and perhaps even neurosyphilis not fully excluded by one negative fluid, go on unrecognized and unchecked. The obligation to follow up patients being given a five day course for the two to four years that represent the infectious relapse and recurrence period of the disease is just as mandatory as to keep a patient being given an eighteen month course coming for a similar period. There can be no prediction—even less than with the slower methods, perhaps—as to which patient is "cured," which will have a relapse, at the time the patient is discharged to observation. With the longer intervals between check examinations and tests in the short systems, evanescent come and go of infective lesions and the temptation to disappear for good have just that much more chance to complicate the problem. No serious study has been made thus far to my knowledge as to which system, the long or the short, tends to hold the patient better to the years of obligatory observation. But even the paying of patients substantially, to return after their five day courses, could not forestall a loss rate of 17 per cent. Losses have ranged from 10 to 20 per cent in other series. This is undoubtedly very low, but it has been secured in some substantial series over only a short period (six months). Proponents of short systems err by suggesting that 5 per cent of cases adequately treated is all that the properly operated modern clinic equipped with competent contact tracing personnel can accomplish. Long term treatment in such clinics is satisfactorily carried through in 25 per cent of early cases, and 50 per cent receive ultimately satisfactory but irregular treatment. In really good clinics, too few in number it must be admitted, with effective case holding methods, 50 per cent of patients measure up to the full standard, 70 to 80 per cent receive ultimately satisfactory though irregular treatment. This still gives foreshortened intensive methods an unknown but probably good lead over older methods in the number of persons who actually get the maximum of drug pumped into them for the cure of their disease and therefore carry around with them from the day of their discharge the 75 to 100 per cent outlook for cure claimed by both long and short systems.

Another point insisted on by proponents of shortened intensive treatment is the reduced cost of the procedure. Hospitalization for the slow five day drip, with the laboratory tests involved, cost at the start about $90, and if a subsidy must be paid for follow-up visits the cost would probably be some $20 higher. It can probably, however, be substantially reduced. A cost of $100 per patient is from 25 to 35 per cent higher than the cost of a long system cure to the patient in a part pay (not a free) clinic of high rank. Ambulatory multiple injection technics are of course capable of reducing the cost much further than did the original hospitalization methods.

All in all then, without even getting down to the last critical essentials, foreshortened treatment is a less obvious beneficence than those who wish now to make it universal have claimed it to be.

And now for the hard pan of the matter: What can foreshortened treatment, whether by drip or by multiple injection, and it may be added with pyrexial therapeutic accompaniment, at least in systems requiring fifteen days or less for their completion, claim for itself? First, an accomplishment in terms of "cure" in seronegative and seropositive primary and in secondary syphilis, equal to but not as yet demonstrably superior to the best of the old methods. Second, in some modifications, reduced time and expense, a widening of available treatment facilities, important in time of emergency and under certain conditions especially affecting the armed forces, the merchant marine and so on. With these gains, which are the only outright gains apparent, they sustain a grave reverse in the form of a mortality from hemorrhagic encephalopathy based on 4,841 treated cases, all methods, of 1 in 220 cases, and a morbidity from encephalitis (nonfatal) of 1 in 160 persons treated. This should be compared with an incidence of encephalopathy by the older methods, estimated at 1 in 20,000 cases, and a total of recorded deaths from mapharsen used in now uncounted hundreds of thousands of cases, not to say millions of injections, of only 6 reported cases. Time does not permit full discussion of the experience of different observers of intensified treatment with figures ranging from 1 to 10 to 1 to 400 mortality. The general indications at this stage of development of intensive procedure are that the death rate will be from one hundred to two hundred times that of older, slower but, when effectively applied, equally effective methods.

Shall this higher mortality, in the absence of significantly higher therapeutic effectiveness, influence the placement of the method in a warring world? It is easily conceivable that there will be situations in which, with the expertness and hospital or treatment center facilities available on which, all proponents of short methods insist, time may become so valuable or those destined for death so "expendable" that the methods must and should be employed. The decision to employ them in this fashion does not lie within the recommendatory power of any advisory body, as the National Research Council Venereal Disease Subcommittee has indicated, unless that power feels it can assume responsibility for an as yet unevaluated and not intrinsically uncriticizable experiment.

To leave the problem at this point would be to ignore the direction from which light and hope are coming, and the truly experimental contributions on which it is based. The admirable work of Eagle and Hogan, destined to become a classic of its kind, indicates that there is in the experimental animal a margin of safety which varies with the prolongation of the treatment. A compromise can apparently be found in which what appears to be the total curative dose of the arsenical (estimated at 20 to 30 mg. per kilogram in man) can be given within a time that provides an optimum of safety under the conditions. Apparently this time seems to be somewhere between six and ten weeks, the drug being administered in man in equal doses of 40 to 80 mg. at the rate of three injections a week. A group of forty cooperating clinics whose total patients treated has now reached 1,100 is employing four, six, eight and ten week "cures" with thus far one death reported from nephritis apparently complicating syphilis rather than treatment, and one nonfatal encephalopathy. The four week cure has been dropped as unsatisfactory. Shaffer and others have added bismuth to the short arsenical courses and are strongly impressed with the better treatment results with less arsenic and the lowered incidence of complications.

The direction from which I myself seem to see the most of promise has unfortunately been unwarrantably expanded from a ray to the flare of a super nova by

one of de Kruif's premature imaginative explosions. From a steadily extending experience with combined fever and chemotherapy in the treatment especially of resistant syphilis we are coming to believe that the beneficial influence of fever in stimulating defense extends all through the disease and that an arsenical, as suggested by Simpson and his co-workers, is if anything better tolerated during pyrexial therapy than at other times. From even our small experience with typhoid pyrexia plus tryparsamide, arsphenamine, neoarsphenamine and mapharsen, we are convinced we can get effects on highly resistant syphilis, which, as noted, is the syphilis against which all our superefforts are really directed, that can be secured in no other way that we have tried. We are prepared to hope, therefore, that the combination of one, two or three sharp and prolonged pyrexial rises with massive dose mapharsen therapy by drip or multiple injection may greatly enhance the possibility of cure and shorten the time required without alarmingly increasing complications. As yet we have no system to offer or endorse. Careful experimental studies as yet unpublished, from other sources, seem to indicate that in experimental animals, while the tolerated dose of mapharsen decreases at fever levels and toxicity increases, the effectiveness of the drug increases far more rapidly.

SOME PROBLEMS INVOLVING GONORRHEA

Neisseriologists apparently will soon be confronting some of the anxieties and doubts of the syphilologists over a massive dose single treatment for gonorrhea. The reports of Miescher and most recently of Pappas indicate that single doses of 2, 3, 5, 6 and 7 Gm. of sulfathiazole cause the disappearance of organisms and symptoms and the apparent cure of uncomplicated cases as effectively and in about the same time as repeated doses. The results with sulfadiazine, still under study, seem especially good. They raise the same question we encounter in massive dose syphilis therapy. Apparently the first 2 or 3 Gm. cures a high proportion. The rest of the cure is unnecessary or directed at the resistant few. Thus in gonorrhea we are approaching rapidly the problems of follow-up after as contrasted with case holding before. Relapse versus reinfection, late toxic effects, serious progression under cover of negative cultures and absence of acute symptoms will perhaps become as familiar as in the syphilis field. A particularly interesting question is raised by the increasing evidence of cumulative toxicity and of sensitizing power on the part of the sulfonamide drugs. Their repeated use leads in about 26 per cent of patients with other medical conditions to fever, rashes and other toxic allergic manifestations, which make increasingly difficult their use in second and third infections, or resumption after relapse. The proposal to use sulfonamides as a species of prophylactic routine, to give them on suspicion either in the presence of clinical without laboratory evidence or even on complaint that the person to whom they are to be given is a source of infection without a proved case, has a serious aspect here. Already there are medicolegal decisions to the effect that giving sulfonamides for conditions in which they are not recognized as effective (such as colds) and producing complications established a presumption of malpractice. What will happen when a smart lawyer gets, in one sense or another, a good case of sulfonamide reaction following prophylactic or therapeutic test administration of the drug?

SOME PROBLEMS OF PROPHYLAXIS

The field of prophylaxis, experientially one of the most productive and promising in venereal disease control in wartime, is, investigatively speaking, the least exploited and most chaotic of them all. The amazing effectiveness of station prophylaxis routinely enforced shows that we have something incomparably useful, with no clear idea of what makes it so. With respect to prophylaxis, realism has had a hard time being heard. Preexposure prophylaxis without control of the alcohol factor is not worth the paper on which it is described. I have had a physician after a get together find in his pocket the condom he put there with the best of intentions. If condoms can be sold to women, and they can be induced to insist and assist, they may join the really fighting front. In this jumble of "theys" I am reminded of the answer given me by a top notch expert on the problem. He said condoms were not used where they were needed and would never be popular because they spoiled the act "like washing your feet with your sox on." I do not recall a set of film or other prophylaxis instructions which says or shows that the lubrication should be inside as well as outside the condom. Logically protection of any sort should be preexposure and not postexposure; and if there is to be any hope that intelligence and not emotion will dominate its use, it should be applied well in advance and have both penetrating and staying power rather than mere momentary mechanical virtues. It should be put on like a cloak of darkness before sallying forth on questionable adventure. The ideal prophylactic is not beyond the bounds of possibility. It should be a penetrating, inconspicuous or even colorless substance or solution like some of the dyes or their leukobases if active, which can be fixed in the skin or mucous membrane for a considerable period, applied over a week end in which heaven or hell knows what may turn up. Anything to be put in or on at the time has so large a margin of objection that it cannot be expected to meet the problem. The casualness and opportunism of much current sexual exposure today rules out even a lubricating oil or jelly. Preexposure prophylactics to the user's way of thinking have contraceptive effect, and it is largely this rather than any idea of preventing disease that actuates the use of the condom. Before preexposure prophylaxis can really be worked out, an adequate technic of animal study (preputial sac of the male rabbit) must be evaluated. Finally I hope not to be taken too seriously when I say that I have wondered whether the Castellani carbolfuchsin paint, astonishingly effective as a bacterial inhibitor in other infections, did not deserve a trial; of the vivid color of a mandril's rump, and not too irritating if not too often applied, it should displace the pink condom over night on esthetic grounds alone.

Postexposure prophylaxis, enforced impartially if it were enforceable, would be almost the answer, were it not for the time factors. But we all know that it is not going very fast as a selling proposition for voluntary use. Closing the gap between a 1 : 3, 1 : 5 and even 1 : 9 ratio between prophylaxis taken and exposures made, is more than an administrative task. As the venereal infections become less and less serious in the light of their increasingly easy cure, gonorrhea, I am credibly told, is becoming a popular form of vacation from the strenuosities of camp life. Washing facilities, the probable crux of effectiveness of all present postexposure methods, are too difficult of prompt access, even when hospital receiving wards and police stations shall have

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been universally enlisted. The research indications are, then, again for an emulsion based, penetrating and vanishing preparation, pleasantly scented, which can be put on and left on, without the use of water or basin, until the next shower. Here is where the as yet insufficiently studied penetrants count, for any one who has ever watched a clock for three not to say five minutes knows that only absolute time clock supervision of rubbing or washing brings full observance; and the boredom alone, not to mention any discomfort, tends against repetition. In fact, it is sharply said of most postexposure prophylaxis that one must be slightly drunk to see it through. Once more, unreported experimental studies offer preliminary hope of discovering a single chemical agent which dissolved or suspended in an appropriate penetrant vehicle will be effective at once against the four major diseases, including venereal lymphogranuloma.

THE PROBLEM OF MORALE IN VENEREAL DISEASE CONTROL

We are confronting a morale problem in this war that has important and serious elements of difference from the last. Scientific discoveries may and in fact are already enhancing the effect of a general loosening up of sex standards. As evidence of the loosening we witness a shift of the infection source from professional prostitute to casual which has delayed and even defeated the approach to control at a number of important points. We find the girl friend or pickup performing her uncertain offices without cost, which confounds the police attack on prostitution; and we find among women and girls of the most unexpected types an almost avid desire to show the boys a good time. Solicitation seems to be climbing to unheard of proportions in many cities, and the dating mechanism developed during peace is superfunctioning in time of war. Some peculiarities of our national effort are important too. We are concentrating troops overwhelmingly in the South, in areas where both white and colored races have a phenomenally high incidence of venereal disease. The color line is thinning, drawing on the Negro reservoir of infection, the highest in the country. Transportation has done things to a peripheral cantonment control which worked in the last war but is far less effective in this. The population as well as the armed forces is on the move, and civilians, equally with the soldier and sailor, are swept into the morale wrecking effects of change, break-up of home and stabilizing influences, loneliness, unrest. Liquor has been less effectively dealt with, later in the game, than in the last war. And now scientific discovery, the one day cure of the maligned but often effective fear producing deterrents of disease, is knocking the props out from under our platform.

Where shall we turn in a situation like this, if not to rediscovery of old truths and their reemphasis in education? The scanty grace now accorded a clean way of living, continence, discussed in five words followed by a but, in the current official instructional films, only stresses to me the more intensely the need, the imperative need, for a moral rejuvenative and positive force to replace a growing cynicism in this whole business. Perhaps it is intended to leave all that to the chaplains. Earnest and effortful though they may be, they will fail. The control of venereal disease, the clean conduct of the sexual life, cannot be made effective by ecclesiastically coated pills. It is a man to man and day to day affair, and it is the business of the commanding personnel from squad corporal to colonel and general on land and up the navy staff to the topmost admiral on the sea. The medical officer in particular owes the morale side of this problem an unshrinking and wholehearted allegiance. The man on whom it fell to summarize the record of the American Expeditionary Forces in the last war I think is not too incorrectly quoted as saying that the sense of being set apart for a great destiny raised the proportion of continence in our armies far above the expectancy for armies generally; and that continence, and not the barbed wire of Sainte Nazaire, kept down our rates. If ever there was a day when the bodies of men, equally with their souls, are set apart for a great destiny, this day is it. I hope that the old stagers of today who, like myself, have slogged through the mud and squinted painfully through the dust of this campaign to make man master of his sexual destiny will through your mingling of spiritual powers with your physical armament at last see the coming of the light.

CARCINOMA OF THE PROSTATE

IMMEDIATE RESPONSE TO BILATERAL ORCHIECTOMY; CLINICAL AND X-RAY EVIDENCE

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Twenty-five years ago Dr. Charles Mayo said "No matter what you do for carcinoma of the prostate, you do the wrong thing." Today this is not true. We can relieve the urinary obstruction by transurethral resection, cause regression of the primary tumor by irradiation and relieve the metastatic pain in most cases by high voltage roentgen therapy to the spine or glandular focus. Further relief from pain, if necessary, can be afforded by spinal injection of absolute alcohol or section of the sensory tracts of the cord. Within the last two years a new approach to therapy for carcinoma of the prostate has been offered. This paper is not a comprehensive symposium on endocrine therapy for carcinoma of the prostate. The various phases of this subject have been discussed in other papers. The relationship of glandular products to activation of prostatic epithelium and carcinoma of the prostate has been thoroughly covered in many papers reported during the last few years.

We present a brief report of the immediate results of castration in 40 cases of carcinoma of the prostate. What the later results will be we do not attempt to prophesy. All but 1 patient has been contacted within the last month. Carcinomatosis was responsible for the death of only 1 of the 4 patients who died. This is the only unsatisfactory case in our series. This low mortality in such a group, during a whole year, is significant. It would certainly have been much higher under the usual routine therapy.

The immediate result with all these patients was almost miraculous. Their general well being and energy at once improved, their appetites picked up and they gained weight. One man gained 50 pounds

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(23 Kg.) in one year, another 35 pounds (16 Kg.) and so on. Eight of these men were bedridden and 3 others could walk only with crutches. All of them were up and about without assistance in ten to fourteen days. Two of the patients had edema of the extremities, most likely from glandular metastasis. The edema in

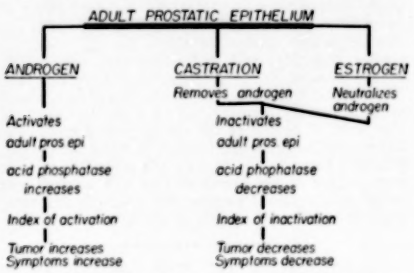

Fig. 1.—Relationship between adult prostatic epithelium and hormones.

1 of these subsided entirely, and partially in the other following castration. Eighteen of these patients were in complete and 22 in partial urinary retention. All but 4 had a transurethral resection performed on them for relief of their obstruction.

One of the striking features of their improvement was the rapid relief of metastatic pain, usually within twenty-four to forty-eight hours after castration. One patient whose condition was unsatisfactory returned, after eight months of relief, with pain and extension of the tumor growth. This relief of pain is most gratifying, and if such therapy had no other value, this one thing would warrant its use. How long this relief will last, we do not know, but time will tell.

Castration was performed on 14 patients who showed no evidence of metastasis. We hoped by this, in addition to causing regression of the primary growth, to

Fig. 2.—*A*, osseous metastasis of carcinoma of the prostate; note hazy, fuzzy, soft osteoblastic response of new bone growth throughout pelvis, especially in superior ramus of pubis and in obturator foramen. *B*, same after castration; note bone healing, sclerosing and clearing of bone detail, approaching normal bone.

retard or prevent the spread of the tumor. Seven of these have had x-ray examination recently and as yet none show metastases. The first case is now of one year's duration. It will, of course, take three to five years before this evidence will be forthcoming. One might compare this with sterilization for carcinoma of the breast. Taylor [1] thought that it did not alter the course of the disease. On the other hand, from the standpoint of endocrine therapy such a comparison is perhaps unwarranted.

The increase of serum acid phosphatase in carcinoma of the prostate is most interesting. Huggins,[2] Gomori,[3] Gutman,[4] Woodard [5] and others [6] have discussed this thoroughly. Suffice it to say that acid phosphatase is found in largest amounts in the adult prostatic epithelium and carcinoma of the prostate, which is a tumor composed of this cell. When metastasis takes place, the tumor cells are expressed into the blood stream and lymphatics and cause a rise in the serum acid phosphatase. Therefore this is an indication of tumor or adult prostatic epithelium activity. The alkaline phosphatase is also increased in these cases. This is dependent on bone defense reaction to the tumor. This series shows that of 17 patients with metastasis 10 had normal serum acid phosphatase and 7 elevated. The King and Armstrong method was used in all, and 4 units was taken to represent the normal. Others have suggested anywhere between 3 and 6 units as normal.

Fig. 3.—*A*, osteoblastic response to metastasis throughout pubis, especially superior ramus of pubis and into obturator foramen. *B*, after castration: sclerosis and clearing of new bone.

This may be a distinct aid in differential diagnosis and proved to be so in 2 of our cases. Certainly, if the serum acid phosphatase is over 10 units it is almost surely indicative of carcinoma of the prostate. However, as we see in this series, it may be perfectly nor-

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mal with or without metastases. The highest report we have had is 180 King and Armstrong units in a patient with a tremendous tumor mass in the pelvis. This would agree with the theory that the enzyme is dependent on the tumor cells for its activation. The alkaline phosphatase determinations showed that they too may be either normal or elevated; but if metastases are present, they are more apt to be elevated.

The relationship between gonadotropic substance and prostatic epithelium is shown in figure 1. Androgen activates the prostatic or tumor cells. This activation may be measured by the serum acid phosphatase. Castration and the removal of the androgen causes a drop in the index of activation, acid phosphatase, and we see clinical signs of regression of the tumor. Similarly, neutralization of the androgen with estrogen causes the same response. In our series 7 of the 18 patients with normal acid phosphatase showed a drop in the acid phosphatase to even lower normal figures after castration. Seven of the 8 with elevated acid phosphatase showed a drop to near normal levels. The 4 on diethylstilbestrol therapy showed a similar phosphatase reduction.

Fig. 4.—Pulmonary metastases for carcinoma of the prostate two and a half months after castration. The lung is entirely clear with no metastases present.

Clinical evidence of regression of the tumor is further indicated in the patients' relief of obstruction. Four of these patients had no operation for removal of the obstruction. The others had transurethral resection. All of the 4, including 2 in complete urinary retention, are voiding satisfactorily and have needed no operative treatment for the obstruction. This must mean that the gland receded enough to relieve the obstruction. Rectal examination in every 1 of the 30 patients who returned for examination showed considerable reduction in size and softening of the gland. Many were softer than normal and it would have been impossible to diagnose carcinoma of the prostate at this time. The case which came to autopsy showed a normal size prostate and seminal vesicles. The pathologist remarked that he would not have been suspicious of carcinoma of the prostate at all from the gross appearance of the gland. A comparison of the microscopic pathologic section of the prostatic tissue before castration with that obtained at autopsy showed decided change, the latter section showing pronounced fibrosis, replacing glandular tissue. Furthermore, chemical analysis of the acid phosphatase in the prostate showed only 8 units per gram of tissue, compared with the normal amount of 500 to 2,000 units reported by Gutman. This is again direct evidence of the definite regression and inactivation of the prostatic epithelium. A complete report of this case is forthcoming.

Further direct evidence of improvement is shown in the clearing of the urinary infection which most of these patients have before and after transurethral resection. It is customary for the infection to remain for many weeks or months after resection for a carcinoma of the prostate. Curiously enough, almost all patients returned with sparkling clear urine. This shows that the regression of the gland was such as to do away with any residual urine. Five of our patients had a history of preoperative or postoperative recurrent attacks of hemorrhage. One had had such profuse hemorrhages that he had had, elsewhere on two occasions, suprapubic cystotomy with packing of the vesical orifice. Since castration none of these patients have had any bleeding at all. All of these phenomena are indications of regression of the primary tumor following castration.

The objective signs of improvement and tumor regression have been most interesting to us. The usual evidence of metastasis of carcinoma of the prostate is seen in the bones of the lumbar spine and pelvis. The reactions are both osteolytic and osteoblastic in type, and the latter is by far the more frequently seen by us. This reaction is the result of the defense response of the bone to the tumor (figs. 2 *A* and 3 *A*). The new bone laid down is soft and appears in islands scattered here and there. New bone growth extending out from the ischium and pubis into the surrounding soft parts is often seen. In the roentgenogram it appears as soft, fuzzy and hazy outlined bone, similar to that of sarcoma. It does not have the dense, sharp and distinct cancellous character of healthy bone. Following castration there is a striking change in this picture. There is a distinct smoothing and sclerosing of bone detail approaching more normal type bone. The reaction is similar to that seen in postirradiation healing (figs. 2 *B* and 3 *B*). This is indirect evidence of regression of the tumor in the bones and occurred in all but 3 of our cases showing metastasis. One showed decreased density, 1 had no change, and 1 showed apparent extension. Whether this is a real extension or simply an increased density of the tumor areas already present is difficult to say. In our series in fourteen metastases were found in the lumbar spine and pelvis, seven only in the pelvis, none only in the spine, five in the ribs and 4 in the lungs.

Of even more interest to us has been the disappearance of the metastatic tumor from the lungs. Our series shows 4 cases with pulmonary metastases. This relatively high percentage is probably best explained by the fact that for the last year we have taken routine roentgenograms of the lungs of every patient with carcinoma of the prostate we have had. If this is done in other hospitals, it will be most interesting to see if this 10 per cent is the usual frequency encountered. Two of these cases showed multiple small miliary type metastases (fig. 4). Careful differential diagnosis between tumor, sarcoid or moniliasis was necessary. The patients had no symptoms or physical signs or the usual history of sarcoid or moniliasis. They cleared up far too quickly on no specific therapy. Internists and roentgenologists especially interested in these diseases were consulted. They all agreed that there was no question but that it was neither sarcoid nor monilia-

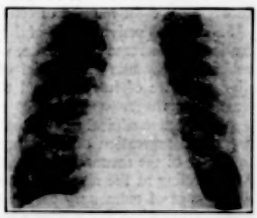

Fig. 5.—Pulmonary metastases from carcinoma of the prostate eight months after castration. Note rounded nodules in lower and middle lobes. Lungs clear with no metastases.

sis but must be metastatic carcinoma. One of these patients subsequently died, and the substantiation of the diagnosis was made at autopsy. Several small metastatic areas of tumor were found scattered throughout the lungs. The other 2 cases showed typical round isolated metastatic nodules, for the most part in the lower lobes (fig. 5). This is the part of the lungs in which one would expect to find the metastases. Roentgenograms in these cases two and a half months after castration, and in 1 case five months later, showed that the metastatic nodules had disappeared. To our knowledge this is the first time this phenomenon has been demonstrated. In the roentgenogram of the bones we see the indirect evidence of regression of the metastatic tumor and in the lungs we see the direct evidence of the tumor itself disappearing. This evidence of the antitumorogenic action of glandular preparations is most interesting and stimulating to further researches.

The effectiveness of diethylstilbestrol in carcinoma of the prostate has been tried in a few cases in our clinic. In all the cases there was a regression of the primary growth and relief of pain. But the results were not as striking as following castration. These will be discussed more in detail in another paper. Diethylstilbestrol is certainly indicated in cases unrelieved by castration, in recurrence of symptoms after castration and when castration is refused.

Two operative procedures have been used by us for castration. In one small group we left the epididymis in place and peeled the testis off from it. This procedure leaves a small rounded inflammatory mass in the scrotum which some think advantageous from a psychic point of view. In the other group the testis and epididymis were both removed. We much prefer the latter procedure.

SUMMARY

1. During the past year 40 patients with carcinoma of the prostate have been castrated.

2. A follow-up in all but 1 case shows a low mortality.

3. The immediate clinical results in all cases was most encouraging.

4. One patient had a relapse and extension of the tumor after eight months of comfort.

5. The subjective signs of improvement after castration are increase in appetite, well being and energy, relief of metastatic pain, relief of urinary obstruction, disappearance of infection and the stopping of recurrent hemorrhage.

6. Objective clinical and laboratory signs of improvement and regression of the tumor after castration are lowering of the serum acid phosphatase, x-ray signs of bone healing at the site of the metastases and the disappearance of pulmonary metastases.

7. Diethylstilbestrol causes a response similar to castration but not of the same degree. We favor castration first and reserve diethylstilbestrol therapy for those who show evidence of extragonadal hormone activity or refuse castration.

CONCLUSION

Our series of 40 cases of carcinoma of the prostate in which bilateral orchiectomy has been done shows remarkable immediate favorable results. We wish to emphasize again that we do not prophesy what will happen to these patients after the first postoperative year.

THE DIAGNOSIS AND TREATMENT OF EARLY CARCINOMA OF THE PROSTATE

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Carcinoma of the prostate deserves the close attention both of the medical profession at large and of all urologists, because in existing circumstances its incidence is increasing and its prognosis is bad. Thus, Moore [1] found it in 21 per cent of autopsies on men past 41 and Duff [2] reported that its frequency as a cause of death among male policyholders of the Metropolitan Life Insurance Company rose from 0.8 per hundred thousand in 1917 to 3.7 in 1928. This rise seems to be due, not to a heightened individual susceptibility to cancer, but to a striking increase in longevity. For example, the number of men living past the age of 65 doubled in the United States between 1911 and 1935; between 1911 and 1941 life expectancy of males at birth increased from 48.2 to an estimated 63.4 years.

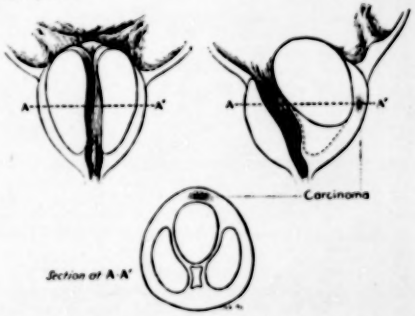

Fig. 1.—Relation of carcinoma to coexisting benign hypertrophy of the prostate.

Despite this increase, early prostatic carcinoma continues to be a clinical rarity. As evidence thereof, Young [3] regarded but 3.4 per cent of 1,040 cases as suitable for a radical operation aimed at cure, while Barringer [4] has stated that in only 4.5 per cent of 352 cases did carcinoma of the prostate appear to be a local disease. Further, Bumpus [5] found metastasis to bone in 24 per cent of 1,000 cases at the initial examination, and Ferguson [6] found them in 30 per cent of his series. Kahler [7] could detect some evidence of metastasis in 51 per cent of patients at autopsy.

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Read in the Symposium on "Treatment of Carcinoma of the Prostate Gland" before the Section on Urology at the Ninety-Third Annual Session of the American Medical Association, Atlantic City, N. J., June 12, 1942.

1. Moore, R. A.: Morphology of Small Prostatic Carcinoma, J. Urol. 33: 224-234 (March) 1935.

2. Duff, John: Cancer Mortality: Bladder, Kidney, and Prostate, 1917 to 1928, J. Urol. 32: 346-353 (Oct.) 1934.

3. Young, H. H.: The Radical Cure of Cancer of the Prostate, Surg., Gynec. & Obst. 64: 472-484 (Feb.) 1937.

4. Barringer, B. S.: Prostate Carcinoma, J. Urol. 33: 616-629 (June) 1935.

5. Bumpus, H. C., Jr.: Carcinoma of Prostate: Clinical Study of 1,000 Cases, Surg., Gynec. & Obst. 43: 150-155 (Aug.) 1926.

6. Ferguson, R. S.: Recent Advances in Diagnosis of Carcinoma of the Prostate, Canad. M. A. J. 29: 497-501 (Nov.) 1933.

7. Kahler, J. E.: Carcinoma of the Prostate Gland: Pathologic Study, J. Urol. 41: 557-574 (April) 1939.

There are many reasons for late discovery of the disease. First, prostatic carcinoma causes no symptoms until it interferes with urination or produces pain by local extension or metastasis. Second, three fourths of the cases (Moore) arise in the posterior lamella at a relatively great distance from the urethra; hence obstruction develops late. Third, the average prostatic carcinoma grows slowly. As evidence, Chwalla [8] had 2 patients who lived eight and nine years respectively after simple cystostomy, and Crenshaw [9] once made the diagnosis thirteen years before obstruction to urination necessitated transurethral resection, tissue from which confirmed the diagnosis. Fourth, about 8 per cent of prostatic cancers (von Illyes [10]) develop within spheroids of benign hypertrophy which hide them from the examining finger. Fifth, most elderly men regard a certain amount of urinary difficulty as an inevitable accompaniment of advancing years and delay medical consultation until severe retention or pain appear. And last, many physicians are not thoroughly aware of the serious significance of isolated hard nodules in the prostate. This fact is directly traceable to the pessimistic view of prostatic cancer held by most urologists.

Thus we may conclude that carcinoma of the prostate is likely to be recognized early only if an alert physician makes a rectal examination in the absence of urinary symptoms; if a coexisting benign hypertrophy causes retention of the urine while the carcinoma is still localized, or if a pathologist finds a "concealed" carcinoma in material resected or enucleated for supposed benign hypertrophy.

Fig. 2.—Prostate covered by rectourethralis muscles and both layers of Denonvillier's fascia.

The earliest carcinoma of the prostate which is recognizable clinically appears as a small stony hard, irregular, poorly circumscribed nodule and does not produce any symptoms, although obstruction to urination may be due to an associated benign hypertrophy. Not all hard nodules in the prostate are cancerous, and careful study may be required to determine their nature. Prostatic tuberculosis is usually accompanied by a story

Fig. 3.—The apex of the prostate has been freed and turned downward, and the anterior wall of the bladder incised.

of urgency and frequency of urination, and pyuria. Prostatic calculi are often crepitant and are visible in a roentgenogram of the pelvis, although one must remember that cancer and calculi may coexist. Occasionally such a film, made of a patient with an apparently "early" neoplasm, will demonstrate silent metastases to bone. An elevation of the phosphatases in the serum may reveal that a suspicious lesion in bone is actually a metastasis. If both studies yield normal results, one may try a course of local heat (hot rectal irrigations, Elliott therapy, diathermy) during which a nodule of inflammatory origin may disappear.

If the nodule persists, biopsy is indicated, and it is here that aspiration biopsy should be of great value. Although Ferguson has found it accurate in 86 per cent of his cases of prostatic carcinoma, Barringer [11] has recently estimated its accuracy at 50 per cent. My experience is more like that of Boyd,[12] who called it disappointing in the small lesions. Biopsy with the resectoscope is also satisfactory in advanced lesions, but to secure an adequate specimen in an early neoplasm localized in the posterior lamella (fig. 1) requires an unusually thoroughgoing resection which is hard to justify in the absence of symptoms, particularly since it leaves an infected field not well suited for a radical operation shortly thereafter. In my experience biopsy can be done satisfactorily in early cases only through a perineal exposure under direct vision.

8. Chwalla, R.: Beitrag zur Therapie des Prostatacarcinoms, Ztschr. f. urol. Chir. **38**: 134-160, 1933.
9. Crenshaw, J. L.: Unpublished observation.
10. von Illyes, G.: Erfahrungsergebnisse bei Nieren-, Blasen- und Prostatakrebs, Ztschr. f. urol. Chir. **41**: 123-132, 1935.
11. Barringer, B. S.: Prostatic Carcinoma, J. Urol. **47**: 306-310 (March) 1942.
12. Boyd, M. L., and Nuckolls, J. B.: Carcinoma of Prostate, J. M. A. Georgia **29**: 493-499 (Oct.) 1940.

Those who favor the "wait and see" policy will object to open perineal biopsy, arguing that the chance of cure by any method is too small to justify it; they prefer simply to observe the patient with an early carcinoma which causes no symptoms and will deal with complaints as they arise by the administration of endocrine preparations, castration, transurethral resection or irradiation. While there is much to justify this widely held attitude, it does not lead to cures.

Those who are more optimistic may implant radon in the nodule and perhaps employ therapy with the high voltage x-rays. Since reactions are often severe, and authenticated cures few and far between (Barringer had two in 352 cases), the wisdom of this procedure is debatable. Its value in early cases cannot be determined for lack of reliable criteria as to what would happen if this form of treatment was not employed, i. e. no one knows how long it would be before symptoms appeared.

Castration as developed by Huggins [13] is, and will continue to be, very difficult to justify to the patient without symptoms, and it seems to have no place at present in the treatment of early cases without pain although often brilliantly successful in late cases as a palliative measure. A patient who is relieved of

Fig. 4.—Ligation of vasa and removal of vesicles after separation of the bladder from the prostate.

severe pain by castration will view its untoward effects tolerantly, while one who had no symptoms in the first place is likely to be greatly disturbed by them.

It is too early to try to evaluate the use of estrogens in the early cases, both because its by-effects after long continued administration are not yet known, and because the duration of its beneficial effects remains to be determined. It appears to hold great promise, and it demands long and painstaking study. Like castration, it has produced striking results in late cases

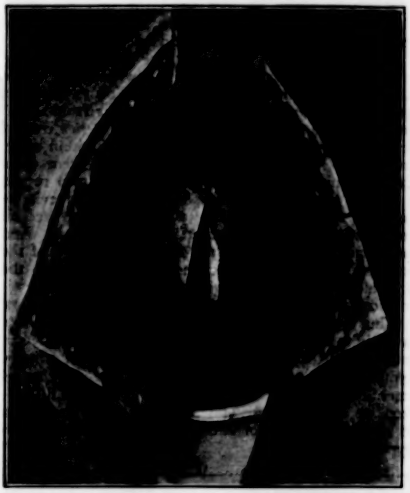

Fig. 5.—Anastomosis of membranous urethra to base of bladder and closure of defect in bladder.

(Herbst,[14] Kearns and his collaborators [15]). The effectiveness of both these methods, particularly in relieving pain, tends to support the "wait and see" school of thought.

Transurethral resection, despite its immense value as a palliative measure, cannot be mentioned as offering any hope of cure. The same may be said of enucleation, whether perineal or suprapubic, although an occasional small carcinoma completely enclosed within a spheroid of benign hypertrophy may thus be cured. In 96 cases collected from reports by Cunningham,[16] Schmidt and Hirsch,[17] von Illyes [18] and Bugbee [18] there were 26 per cent of two to five year "cures." One can scarcely speak of cure in less than ten years.

The only method which can be said at present to offer a definite prospect of cure is radical perineal prostatectomy, so long advocated by Young. Lewis [19] has reported "just under 50 per cent of five year cures" in 115 cases of Young and his associates. In doubtful cases the operation should begin by exposing the prostate, excising the nodule with a diathermy loop and submitting it to a competent pathologist for study by "fast frozen" section; if carcinoma is found, total prostatectomy is carried out at the session.

13. Huggins, Charles, and Hodges, C. V.: Studies on Prostatic Cancer, J. Cancer Research **1**: 293-297 (April) 1941.

14. Herbst, W. P.: The Effects of Estradiol Dipropionate and Diethyl Stilbestrol on Malignant Prostatic Tissue, Tr. Am. A. Genito-Urin. Surgeons **35**: 195-202, 1941.

15. Kearns, W. M.; Bruskewitz, H. W., and Flaherty, W. A.: Treatment of Carcinoma of the Prostate with Estrogens, Wisconsin M. J. 1942, to be published.

16. Cunningham, J. H.: Treatment of Carcinoma of the Prostate, Boston M. & S. J. **188**: 99-105 (Jan. 26) 1922.

17. Schmidt, L. E., and Hirsch, E. F.: Small Carcinomas of the Prostate Gland, J. Urol. **20**: 387-403 (Oct.) 1928.

18. Bugbee, H. G.: Cases of Unsuspected Carcinoma of the Prostate Discovered on Microscopic Section, J. Urol. **22**: 376 (Oct.) 1929.

19. Lewis, L. G.: Carcinoma of the Prostate: Young's Radical Perineal Prostatectomy, J. Urol. **47**: 302-305 (March) 1942.

It is important to memorize carefully the exact location of a small lesion beforehand, since for some obscure reason it may be difficult to locate with the patient anesthetized. The operation is carried out through Young's approach (fig. 2) and is not difficult technically unless the perineum is quite thick, the gland large or the pubic arch narrow. The urethra is divided at the apex of the prostate, which is then reflected backward to expose the vesicoprostatic juncture (fig. 3). The bladder is opened just above it by a transverse incision which continues clear around the periphery of the prostate. The ampullae of the vasa are divided and ligated, and the vesicles dissected out (fig. 4). The cut edge of the urethra is joined with mattress sutures over a Foley bag to the cut edge of the bladder; the remainder of the opening in the bladder is closed longitudinally by a running stitch (fig. 5).

Convalescence is usually smooth and short, probably because there is no prostatic bed to become infected. The last 3 patients have left the hospital in twelve to fourteen days with normal control of urination.

There are several arguments against the use of this operation. The mortality is as high as 10 per cent. There is a very definite risk of incontinence, permanent incontinence having resulted in 2 of 10 cases at the University Hospital. One patient loses a few drops during exertion, and 1 died of operation so that control could not be determined, but 6 had normal control.

Removal of the seminal vesicles removes the means of orgasm, but this is not an insurmountable objection in elderly men.

It can be argued that the very patients in whom the operation is indicated might live, as did Crenshaw's, in comfort for many years without operation. This admittedly cannot be settled.

The chief obstacle to the satisfactory use of radical perineal prostatectomy is its low rate of applicability, which can be overcome only by a campaign of education designed to lead to early detection of prostatic carcinoma.

Before defending the method, one may well ask whether any attempt to cure any cancer in any organ is defensible. If the answer is yes (as it certainly is) then radical perineal prostatectomy is worthy of a widespread trial, especially since it carries a better chance of cure than any other method. Moreover, it very nearly eliminates the danger of that subsequent obstruction to urination which is the bane of all other methods. Its mortality is certainly reducible by further experience to a very low level (our one death was due to infection in the presulfonamide era). When it is argued that the operation is too formidable for an old man, one must remember that an old man may suffer just as keenly as a young one and has less to lose.

SUMMARY AND CONCLUSIONS

1. The number of cases of carcinoma of the prostate is increasing, not because of increased individual susceptibility, but because of increasing longevity.

2. Its prognosis is poor.

3. The early case can be recognized if every small hard nodule in the prostate is subjected to careful study, including biopsy.

4. Aspiration biopsy is least useful where most needed, i. e. in small nodules of doubtful character.

5. Treatment may be symptomatic, but radical perineal prostatectomy alone offers any real hope of cure, although its rate of applicability is low.

6. The role of endocrine preparations in the therapy of the early case offers interesting possibilities.

7. Widespread trial of radical perineal prostatectomy should be made in properly selected early cases.

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TRANSURETHRAL RESECTION OF MALIGNANT LESIONS OF THE PROSTATE GLAND

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The attending physician may be asked many difficult questions by the patient afflicted with a malignant process of the prostate gland.

Because of the nature of the disease, the patient generally is free of symptoms until the lesion is rather well advanced. Often symptoms of urinary obstruction, such as diminution in the size and force of the stream, and urinary frequency or nocturia, are the first indications of the disease. Less frequently pain caused by skeletal metastasis or loss of weight and anemia without the slightest urinary distress are the only signs of the disease. In either case complete surgical extirpation of the lesion is practically always impossible. Until Huggins and his co-workers [1] discovered that bilateral castration usually would bring about regression of the local malignant process and of generalized metastasis, surgical procedures, if indicated at all, were at best purely palliative for 95 per cent of all patients afflicted with prostatic carcinoma.

Most surgeons who have advocated radical perineal prostatectomy also have freely admitted that the procedure can be utilized in only 5 per cent of cases or less. They make a plea for earlier diagnosis, calling attention to the desirability of frequent rectal examination, especially in men beyond the age of 50. Every physician will wholeheartedly agree with this recommendation in the hope that very small neoplasms which have caused no symptoms may be discovered and appropriately treated.

Radical operations in this carefully selected group, according to the reports of Colston [2] and of Smith,[3] achieve five or more years of survival for half the patients treated. Thus, of the selected 5 per cent of all patients who have prostatic cancer, half, or about 2.5 per cent for whom such a diagnosis is made, survive radical operation for five years.

The outlook, then, would indeed seem discouraging if it was forgotten that the average age of the patient at the time of discovery of the disease is about 70 years. True enough, a few patients suffer from prostatic cancer in their early fifties, but the great majority are at an age at which life expectancy, because of other types of coexistent degenerative disease, is not great; hence the

From the Section on Urology, Mayo Clinic.
Read in the Symposium on "Treatment of Carcinoma of the Prostate Gland" before the Section on Urology at the Ninety-Third Annual Session of the American Medical Association, Atlantic City, N. J., June 12, 1942.

1. Huggins, Charles; Stevens, R. E., and Hodges, C. V.: Studies on Prostatic Cancer: II. The Effects of Castration on Advanced Carcinoma of the Prostate Gland, Arch. Surg. **43**: 209-223 (Aug.) 1941.

2. Colston, J. A. C.: Surgical Treatment of Carcinoma of Prostate, New England J. Med. **223**: 205-214 (Aug. 8) 1940.

3. Smith, G. G.: Total Perineal Prostatectomy, Pennsylvania M. J. **44**: 1391-1399 (Aug.) 1941.

problem resolves itself into the question as to which type of treatment can be employed at the least risk and still provide the greatest degree of comfort. The declining years of these men, most of whom are grandfathers, are perhaps among the most enjoyable of their lives. For this reason the chance of shortening their lives or of rendering them incontinent of urine must be weighed carefully; it must be remembered that even in the smallest lesions metastasis beyond the confines of the prostatic capsule may already have occurred.

The great tendency for carcinoma of the prostate gland to metastasize early has been demonstrated by extensive treatises on pathology by Moore,[4] by Rich [5] and by Kahler.[6] The work of these men was recently substantiated by Baron and Angrist,[7] who studied the incidence of occult adenocarcinoma of the prostate gland among men beyond the age of 50. These workers studied 50 cases in which the prostate gland in its entirety had been obtained at necropsy. They stated that

> no attempt was made to select prostates with areas arousing suspicion. The general size of the prostate was noted and, to evaluate the accuracy of the gross diagnosis, an attempt was made to pick out areas in the gross specimen which suggested induration or other gross criteria of carcinoma. In only 1 case of the entire series of 50 was the area suspected of carcinoma found to have been chosen accurately. . . .
>
> Using the criteria which we have outlined in a foregoing section, we found carcinoma in 23 of the 50 prostates, an incidence of 46 per cent. In 9 of these 23 glands the carcinoma was in the lateral lobes and in 4 in the posterior lobe. In the remaining 10 the neoplasm either was too large to allow determination of the site of origin or occurred at the site of junction of the lateral and posterior lobes, invading both. This differs from the widely accepted concept that carcinoma usually originates in the posterior lobe.

Results of this study indicate that carcinoma of the prostate gland cannot be detected early enough by any clinical method of examination now known to make it possible to effect cure by radical surgical extirpation.

Kahler in his study found a very high incidence of perineural lymphatic involvement, even in cases in which the lesion was extremely small. In fact, in searching for extension to the perineural lymphatic vessels with the low power objective he found such involvement in the same microscopic field as that which included the tumor in all cases except 13 per cent of grade 1 tumors and 15 per cent of grade 2 tumors. Furthermore he found that, in 51 per cent of cases in which the tumors had been recognized clinically or grossly, distant metastasis was demonstrable at necropsy.

During the past ten years at the Mayo Clinic we have not employed radical perineal prostatectomy. In our opinion the evidence at hand clearly indicates that when carcinoma of the prostate gland has developed sufficiently to cause urinary obstruction the disease has spread through the perineural lymphatic vessels and cannot be completely eradicated by any surgical procedure.

It has been our belief that complete surgical removal of even the smallest lesions is impossible. Therefore in considering a case, for instance, in which a tiny nodule with only a suspicion of malignancy exists it has seemed to us best to advise either no treatment or, at the most, a course of roentgen therapy. In many instances only periodic observation has been advised, and practically every suspected lesion that has been observed has remained small and the elderly patient has succumbed after a number of years to some other disease. Such an attitude might be questioned; however, we feel that the work of Moore, Rich, Kahler, Baron and Angrist, in addition to the clinical experience we have obtained by having observed over a period of years many such patients, justifies this stand.

Bumpus [8] in 1922 reported a large series of cases in which radium therapy was instituted. The results of such treatment did not justify its continuance, as he later emphasized. Bumpus [9] in 1930 called attention to the great value of transurethral resection as a means of palliation.

It is our present attitude at the Mayo Clinic that transurethral resection which adequately removes all the obstructing tissue, combined with bilateral orchiectomy [1] (or, if the patient refuses this, irradiation or the administration of diethylstilbestrol), offers the patient a far better prognosis than does any radical procedure. This scheme of treatment is accompanied by much less risk to life than is the radical operation and offers almost certain assurance that control of micturition will be perfect.

MATERIAL STUDIED

It seems appropriate, in defense of the aforementioned attitude, to present a statistical study of a group of 887 cases of malignant neoplasms of the prostate gland in which transurethral resection was performed during the interval 1924 to 1941 inclusive. Practically all the operations were done in the last ten years, only 20 of the 887 operations having been performed prior to 1932. Special attention will be directed to a group of 334 patients who were operated on prior to Jan. 1, 1937, since in these 334 cases it is possible to obtain survival figures of five years or more. In all the cases included there was pathologic confirmation of the diagnosis by microscopic examination. In 17 cases a definite clinical diagnosis of carcinoma of the prostate gland had been made but there was no histologic diagnosis of malignancy, and these 17 cases therefore are excluded from the series in this study.

I wish to make clear the fact that this group of 887 is composed only of patients who had definite symptoms of urinary obstruction. A large group of patients who had a malignant lesion in the prostate gland but no urinary symptoms is excluded. These patients were treated, if they were treated at all, by irradiation.

AGE OF PATIENTS

Reference to table 1 will show that the mean age of the patients in this series of cases was 69.5 years. Only a few were less than 50 and a considerable number were more than 80 before their carcinoma caused symptoms which required relief by operation. In the light of Baron and Angrist's observations as to the incidence of occult carcinoma, it seems likely that many of these men had the neoplasm for at least ten years prior to operation. We have seen from time to time many men in whom a very small nodule, regarded as being suspiciously malignant, was discovered eight to ten years

4. Moore, R. A.: The Morphology of Small Prostatic Carcinoma, J. Urol. 33:224-234 (March) 1935.
5. Rich, A. R.: On the Frequency of Occurrence of Occult Carcinoma of the Prostate, J. Urol. 33:215-223 (March) 1935.
6. Kahler, J. E.: Carcinoma of the Prostate: A Pathologic Study, Thesis, University of Minnesota, Graduate School, 1937.
7. Baron, Edgar, and Angrist, Alfred: Incidence of Occult Adenocarcinoma of the Prostate After Fifty Years of Age, Arch. Path. 32:787-793 (Nov.) 1941.
8. Bumpus, H. C., Jr.: Radium in Cancer of the Prostate: A Report of Two Hundred and Seventeen Cases, J. A. M. A. 78:1374-1376 (May 6) 1922.
9. Bumpus, H. C., Jr.: Treatment of Carcinoma of the Prostate Gland, Memphis M. J. 7:61-63 (April) 1930.

or more prior to the onset of urinary symptoms. I do not think that any great number of these patients could have been cured by a radical operation at the time they were first examined.

DIAGNOSIS

The only certain method of diagnosis is microscopic examination of tissue removed either at operation or for biopsy. Aspiration biopsy has been recommended by some. This is a very uncertain procedure, and it seems likely that in any case in which the lesion is large enough to be found with a needle passed through the perineum under the guidance of a finger in the patient's rectum the malignant process has already progressed to a stage in which complete removal is impossible.

Any prostate gland which is very firm in consistency should be regarded with suspicion. However, not all malignant glands are firm nor are all which are firm malignant. Careful examination of the edges of the gland, especially of that portion on the lateral border just within the anus, is important. If the bladder is distended, coincident edema may be sufficient to mask the malignant area. Reexamination after a day or two of drainage by catheter is therefore desirable.

The making of a plain roentgenogram of the area of the kidney, ureter and bladder, which also includes the ischium and upper ends of the femurs, often will reveal

TABLE 1.—*Distribution of Patients by Age*

Age, Years	Patients	Per Cent
Less than 50	7	0.8
50-59	94	10.6
60-69	361	40.7
70-79	338	38.1
More than 80	87	9.8
Total	887	100
Mean	69.3 years	

metastasis which was unsuspected on the basis of the clinical history. Other data with reference to diagnostic points, especially those obtained by cystoscopic examination, have been discussed in a previous publication.[10]

OPERATION

Transurethral resection was performed with either the Braasch-Bumpus, Stern-McCarthy or Thompson resectoscope. In by far the majority of cases the last named instrument was used. The removal of all obstructing tissue was the aim of the surgeon in each case. This of course does not mean removal of all malignant tissue, for, as previously stated, I do not think this is possible by means of any type of operation. However, adequate removal of all tissue encroaching on the neck of the bladder and the prostatic urethra is readily accomplished by transurethral resection. An almost normal urethral contour can be reestablished by this procedure, as can be shown by reexamination many months after operation. At that time perfect healing of the surface is apparent; the statement which has been made that a malignant prostatic urethra does not heal is erroneous, according to my experience. If the operation is properly performed the voided urine will be microscopically negative within a few weeks postoperatively in a high percentage of cases. Ease and comfort in voiding, with excellent immediate control, is the rule. Only exceptionally is there any urgency, and very rarely does permanent incontinence result.

10. Thompson, G. J., and Emmett, J. L.: The Treatment of Carcinoma of the Prostate Gland by Transurethral Methods, Urol. & Cutan. Rev. 39:679-685 (Oct.) 1935.

In most instances in which postoperative incontinence occurs it is caused by trauma incidental to introduction of the resectoscope. Careful dilation of the urethra with sounds before the instrument is introduced will greatly lessen the hazard of incontinence. In exceptional cases fixation of the external sphincter by extension into it of the malignant process may result in

TABLE 2.—*Amount of Tissue Removed*

Amount of Tissue, Gm.	Patients	Per Cent
0-9	282	33.4
10-19	312	36.8
20-29	147	17.3
30-39	52	6.1
40-49	31	3.7
50+	23	2.7
Total	848*	100
Largest	94 Gm.	
Mean	17 Gm.	

* Concerning 39 patients there was no record of the amount of tissue removed.

incontinence. If this involves the entire sphincter the damage may be irremediable; however, in several instances I have removed the proximal half of the sphincter and have thereby restored continence for a considerable interval.

In my opinion, based on the performance of cystoscopic examination of a number of patients who have undergone radical operations elsewhere prior to coming to the Mayo Clinic, a much better appearing prostatic urethra results from transurethral resection than from other types of operation. It is necessary, of course, to remove all encroaching nodules. Incomplete transurethral resection is no better than a gouging, tearing procedure of any sort. With a resectoscope tissue can be planed down so that a smooth, uninterrupted flow of urine through the neck of the bladder and prostatic urethra is possible for many months or even years. In table 2 is shown the amount of tissue removed. In many cases very substantial amounts were excised, the mean weight being 17 Gm.

PATHOLOGIC ASPECTS

As previously stated, in all the cases included in this series histologic confirmation of the diagnosis was obtained. It is interesting to note that, during the interval of 1924 to 1941 inclusive, in only 17 instances in which a definite clinical diagnosis of carcinoma was made did resection fail to include tissue which was

TABLE 3.—*Grade of Malignancy*

	Patients	Per Cent
Grade 1	112	12.7
Grade 2	277	31.4
Grade 3	312	35.5
Grade 4	180	20.4
Total	881*	100

* In 6 cases the grade was not noted.

malignant. This refutes the statement that transurethral resection often will remove only benign tissue and leave substantial amounts of malignant tissue in the posterior portion of the prostate gland. Resection which is done in that manner will of course provide only temporary benefit, if indeed any.

In table 3 is shown the grade of malignancy determined according to Broders' method. In practically all cases (858 of the 887, or 97 per cent) the neoplasm was adenocarcinoma. In 22 cases, or 2.5 per cent, the

lesion was squamous cell epithelioma and in 7 it was mixed and squamous cell carcinoma. It will be noted that in approximately 56 per cent of the cases the lesions were of grades 3 and 4.

Attention was called in a previous publication (Zide,[11] discussion by G. J. T.) to the necessity for caution in examination of tissue removed by transurethral resection of the benign prostate when the operation is done in two stages. At the secondary operation some of the tissue removed will exhibit pronounced hyperplasia of the epithelium of the prostatic ducts. These are the cells which form the epithelial lining of the new prostatic urethra. An uninformed pathologist may easily mistake these cells for malignant ones and make a diagnosis of "cancer." This leads to at least two subsequent errors: either the use of roentgen therapy, which may cause great distress and needless expense, or formation of the false conclusion, years later, that "cure" of carcinoma of the prostate gland has been obtained. Furthermore, if the patient is informed that he has a "cancer" he will suffer unnecessary mental anguish.

TABLE 4.—*Five Year Survival Rates According to Grade of Malignancy*

	Patients Who Survived Operation *		Lived Five or More Years After Leaving Hospital	
	Total	Traced	Number	Per Cent of Traced Cases
Grade 1	24	23	14	60.9
Grade 2	92	89	20	22.5
Grade 3	146	142	11	7.7
Grade 4	67	67	..	....
Not stated	5	5	1	20.0
Total	334	326	46	14.1

* Inquiry as of Jan. 1, 1942. Included herein are patients operated on five or more years prior to the time of inquiry; that is, 1936 or earlier.

POSTOPERATIVE COURSE

In the great majority of cases a one stage operation will restore normal urinary function. In recent years, in less than 4 per cent of cases, the patient has not voided freely and reoperation within a ten day period has been done. The average stay in the hospital for members of the group as a whole was eight days, after which they were ambulatory and reported daily in the clinic, unless they resided within 50 miles of Rochester, in which case they returned home and reported to us at less frequent intervals, until they were finally dismissed from our care.

TABLE 5.—*Five Year Survival Rates According to Age*

	Patients Who Survived Operation *		Lived Five or More Years After Leaving Hospital	
Age, Years	Total	Traced	Number	Per Cent of Traced Cases
Less than 60	39	39	6	15.4
60-69	143	140	18	12.9
70-79	122	117	17	14.5
More than 80	30	30	5	16.7
Total	334	326	46	14.1

* Inquiry as of Jan. 1, 1942. Included herein are patients operated on five or more years prior to the time of inquiry; that is, 1936 or earlier.

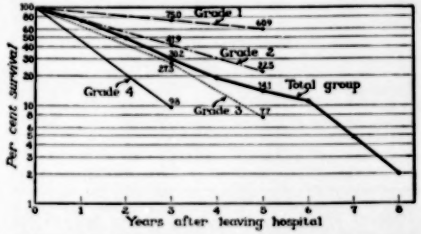
11. Zide, H. A.: Changes in Prostatic Tissue After Operation, Proc. Staff Meet., Mayo Clin. **12**: 769-772 (Dec. 8) 1937.

In the 887 cases there were ten deaths, or a mortality rate of 1 per cent. This includes all deaths, regardless of the cause.

The postoperative care of an aged patient who has carcinoma of the prostate gland is an art which will tax the ingenuity of any one. Perhaps more so than those who have benign conditions, they must be managed carefully lest bronchopneumonia, cardiac complications, renal insufficiency, intestinal disturbances due to fecal impaction, thrombophlebitis and a host of other afflictions impede and lengthen their convalescence. Very careful management of the inlying catheter and judicious after-care to insure freedom in voiding are extremely important. Some of the principles of the care of these elderly patients have been described elsewhere.[12]

IRRADIATION

Of the 877 patients who survived operation, 206, or 23.5 per cent, were irradiated. With the exception of a few instances in which radon seeds were implanted into the prostatic capsule through the perineum, treatment was by roentgen rays, and a standard 200 kilovolt machine was used. In almost all cases between five and eight treatments, of fifteen to twenty minutes' duration each, were employed. Various fields were used, according to the best judgment of the specialist in roentgen therapy. I am not capable of presenting the details of this treatment.



Status of traced patients who underwent transurethral resection as of Jan. 1, 1942. The percentage and length of survival of those who had lesions classified according to one of the four grades of Broders also is shown.

In the period prior to 1937 70 patients received treatment. Sixty-nine of these were traced and of these 10, or 14.5 per cent, had lived five or more years.

SURVIVAL RATES

A composite chart has been prepared which shows the percentage of survivals according to years. It will be seen that as of Jan. 1, 1942 in the group of traced patients 75 per cent lived at least a year, 50 per cent lived at least two years and 30.2 per cent lived at least three years after operation. Other interesting figures pertaining to the various grades of neoplasms (Broders' method) may be noted by study of this chart.

It has seemed to me best to study particularly a group of 337 patients who were operated on prior to 1937. Three of these patients died in the hospital. In table 4 are presented the five year survival rates computed according to the grade of malignancy of the lesion. Of the 334 patients, 326 were traced and a total of 46

12. Thompson, G. J.: The Prevention of Complications of Transurethral Prostatic Resection, Urol. & Cutan. Rev. **38**: 847-851 (Dec.) 1934.

patients, or 14.1 per cent, were found to have lived five years or more after leaving the hospital. The survival rates computed according to the grade of malignancy of the tumor reveal that no patient who had a tumor of grade 4 survived operation for as long as five years.

A number of patients included in this group of 334 were still living (at the time of this report); some of them had survived for eight and even nine years postoperatively. In at least 2 cases it would seem that a cure had been established, for in 1 of them careful necropsy failed to reveal any evidence of a remaining carcinoma. In the other, subsequent transurethral resection of benign adenomatous tissue was done and there was no clinical or microscopic evidence of carcinoma. Reexamination of the tissue removed at the first operation confirmed the original diagnosis; evidently a small carcinomatous nodule within an adenoma had been removed at the first operation.

It should be emphasized that no claim to cure is made in any case, and that all the operations were done purely as palliative procedures. However, the fact that in 14.1 per cent of cases survival of five years was obtained is encouraging indeed. Certainly, among many of the patients who died prior to five years postoperatively the cause of death was in no way related to the prostatic cancer. They died, rather, of the other diseases which afflict men of this age group.

For some time I have thought that older men withstand carcinoma of the prostate gland better than younger men do. Yet study of this group of 334 patients, as shown in table 5, discloses little if any evidence to substantiate this clinical impression.

REOPERATION

It has been stated that the period of relief of urinary obstruction after transurethral resection of the malignant prostate gland is short; in fact, so short as to make other types of operation preferable on this basis alone. Study of the records of patients who underwent operations prior to five years ago shows that as of the last report 66, or 20 per cent of the 334 patients, returned to the clinic for a subsequent operation. An additional 19 patients were operated on elsewhere after they had left the clinic. Thus, in the interval of at least five years which elapsed after operation 85 patients, or 25 per cent, have had a subsequent operation.

Only in extremely rare instances was an operation necessary within less than a year. The great majority of patients were able to void urine satisfactorily until death. Of the 46 patients who survived operation five years or more 16, or 35 per cent, required one operation or more subsequently. The interval between operations was as long as 6.5 years. Four of these 16 patients lived comfortably for more than five years between operations. This certainly suggests that carcinoma of the prostate gland is in some cases a slow growing tumor. Further, the study indicates that in a high percentage of cases complete freedom in the voiding of urine is provided by transurethral resection and that this freedom exists until the patient dies of metastasis or other unrelated disease. In my opinion transurethral resection during the past decade has been the beacon of hope for patients afflicted with prostatic carcinoma. By means of it rapid restoration of vesical function, at a minimal risk and with a short period of hospitalization, has been possible. If the operation is combined with Huggins' procedure of castration, the results in the future should be superior to those obtained in the past decade. Certainly the outlook for any patient unfortunately afflicted with carcinoma of the prostate gland is brighter at present than it has been heretofore.

CONCLUSIONS

1. Carcinoma of the prostate gland is an insidious disease which usually does not cause symptoms until it is well advanced. It is difficult to detect in its early stages by any known clinical method.

2. In 95 per cent of patients the disease has spread beyond the confines of the prostate gland when they are first observed; in 5 per cent or less radical perineal prostatectomy may be justified as a method hopeful of cure in the strict sense of the word.

3. Transurethral resection is the most desirable operation for the relief of obstructive urinary symptoms caused by the disease. Entirely adequate relief for prolonged intervals follows if the operation is properly performed. Normal vesical function is achieved at minimal risk to life, and practically no risk of incontinence will result.

4. Transurethral resection of the obstructing tissue combined with bilateral orchiectomy as suggested by Huggins, and the administration of diethylstilbestrol, seem to constitute the best method of treatment now available for patients who have retention of urine. Unless urinary obstruction exists, orchiectomy and diethylstilbestrol therapy seem to constitute the treatment of choice.

PROSTATIC CARCINOMA TREATED BY ORCHIECTOMY

A PRELIMINARY REPORT BASED ON SEVENTY-FIVE CASES OBSERVED FOR AT LEAST SIX MONTHS FOLLOWING OPERATION

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Our purpose in this report is to present data on 75 cases of prostatic carcinoma treated by orchiectomy at the University Hospital and observed for periods of at least six months following that procedure. The diagnosis was confirmed by microscopic examination in 60 of the cases; in 15 there was no material removed for biopsy, the diagnosis being established on the basis of characteristic findings on rectal examination, with evidence of metastases by x-ray examination or by elevated serum phosphatase levels in all except three. Preoperative acid phosphatase determinations by the method of King and Armstrong were carried out in 28 of the cases. At the time this therapeutic project was begun, these determinations were not being made at the University Hospital Laboratory. Eleven cases (39 per cent) showed elevated serum acid phosphatase levels of 6 King-Armstrong units or higher. The preoperative determinations in these cases are given in the accompanying table.

There were 6 cases with x-ray evidence of metastases in which no elevation of acid phosphatase level was observed; 6 of the cases showing elevated serum acid phosphatase evidenced skeletal metastases.

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Read in the Symposium on "Treatment of Carcinoma of the Prostate Gland" before the Section on Urology at the Ninety-Third Annual Session of the American Medical Association, Atlantic City, N. J., June 12, 1942.

CLINICAL RESPONSE TO ORCHIECTOMY

Pain.—The most spectacular feature of these cases is the early and satisfactory relief of pain, which occurs in from twenty-four to seventy-two hours in most instances in which relief is obtained. We have observed two or three exceptions to this general rule, however, in cases in which relief of pain came on very gradually after a period of several weeks. In 42 of the cases here reported pain of metastatic origin was complained of on admission. Five of the patients obtained no relief whatever following operation, while 27 obtained complete relief of pain and 10 obtained partial relief.

Weight.—Eighteen patients complained of significant weight loss on admission to the hospital. Thirteen of these regained their weight losses. The operation on the remaining 5 was a failure; 2 are dead. Thirty-eight additional patients have had appreciable gain in weight since orchiectomy, some gaining as high as 50 or 60 pounds (22 to 27 Kg.) during the minimum of six months under observation. The exact cause for this weight gain is difficult to determine. Undoubtedly several factors enter into the picture, including relief of pain, improvement in appetite, which is constant in all successful cases, and a sense of well being, which is generally noted.

Preoperative Determinations

	King-Armstrong Units of Serum Acid Phosphatase
3 cases	6
2 cases	13
1 case	22
1 case	30
1 case	55
1 case	57
1 case	90
1 case	130

Urinary Obstruction.—Fourteen patients complained of difficulty with voiding or complete retention of urine in whom orchiectomy was performed and in whom no operation for the relief of prostatic obstruction was carried out. Five of these patients were placed on suprapubic drainage at the time of orchiectomy. Three have regained the ability to urinate by urethra after shrinkage of the primary neoplasm. Two of these patients are still unable to urinate, although they have had a great reduction in the size of the prostatic tumor. Nine patients at the time of orchiectomy complained of significant difficulty with urination. All these patients have experienced more normal urination since orchiectomy.

Transverse Myelitis.—Two patients were admitted to the hospital complaining of severe metastatic pain and transverse myelitis below the middorsal level. Both had complete relief of pain and complete return of neuromuscular function following orchiectomy.

One of these patients is of particular interest in two respects. He was given a therapeutic test of diethylstilbestrol therapy 1 mg. three times daily for a period of three months without relief of pain. The neurologic complications progressed during that time. At the time of orchiectomy he had complete transverse myelitis and was receiving 3 grains (0.2 Gm.) of morphine daily for pain. Following orchiectomy he became free from pain within three days and at the end of one week he regained the ability to move his toes and within two weeks was able to move his legs normally. The second interesting and important feature was that after almost complete recovery from his symptoms and signs as well as reduction in the size of the primary tumor this patient had delayed return of symptoms after a period of four months' relief and is at the present time rapidly going down hill and is to be considered in the category of delayed failure.

Primary Lesion.—Forty-one of the 75 cases have been examined rectally by two or more members of the urologic service at least six months after operation and are therefore available for objective evaluation.

Twenty-seven cases showed definite regression in the size of the prostate gland although still recognizable as carcinoma to palpation. The prostate in several has regressed in size and has become more soft in consistency than was noted on preoperative examination.

Eight cases have shown a regression in size so that the prostate is now atrophic, firm and smooth with no obvious infiltration either laterally or into the seminal vesicles.

The prostates in 6 cases have changed from a condition which was obviously malignant before operation to a consistency now unrecognizable as neoplastic by rectal examination. In these cases rectal examination discloses a prostate gland moderately enlarged, soft, noninfiltrated and objectively benign. Certain features of these 6 cases are of interest and will be enumerated as follows:

Two patients with massive carcinoma of the prostate with widespread metastases, put on suprapubic drainage, are now voiding satisfactorily with the prostate gland normal to palpation.

Two had advanced primary lesions with extensive infiltration locally and extensive metastatic lesions. One of these, besides having complete disappearance of all objective evidence of local malignancy, has had almost complete regression of extensive metastatic neoplasm as determined by x-ray examination.

One patient with an extensive local lesion without metastases but with a serum acid phosphatase level of 55 King-Armstrong units before operation has had a regression of the primary to a condition which is interpreted as being normal to rectal examination and has had a return of the elevated serum acid phosphatase level to 7.5 King-Armstrong units.

One patient with a large carcinoma with extensive infiltration rectally has returned to a normal state to rectal palpation, but x-ray evidence of metastases shows a constant progression of these lesions and the patient is at the present writing in a terminal state.

Skeletal Metastases.—Positive x-ray evidence of skeletal metastases was found in 31 cases. In 12 of these an x-ray examination was made at least six months following orchiectomy. Four show definite regression of the x-ray evidences of metastases, while 8 show an increase in the osseous changes noted in the x-ray film before gonadectomy.

SUMMARY OF RESULTS

Favorable Responses.—In 48 cases pronounced clinical improvement has occurred. These patients have all shown regression of the primary neoplasm, have all

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gained weight and all who had pain prior to orchiectomy are now free from it and all are voiding satisfactorily.

Seven additional patients have had complete relief of symptoms but there are no objective evidences of improvement either in the primary neoplasms or in the roentgenograms.

Unfavorable Responses.—Five patients are dead. Four of these died of carcinoma, while 1 died of congestive heart failure and infection. This patient had a grade 2 neoplasm which was not extensive and should not be regarded primarily as a failure of the procedure.

Fifteen of this group are alive. Five showed no favorable response at any time following operation, have continued to pursue a downhill course and show advances in the primary lesion as well as the secondary lesions.

Ten of the patients whose treatment ended in failure showed an excellent clinical response and were symptom free for varying periods of time, ranging from three to twenty-two months after orchiectomy before suffering return of symptoms. Five of these had a pronounced regression in size of the primary neoplasm which did not reverse at the time of decline. We have observed no significant improvement in the symptoms of any of these patients following the administration of diethylstilbestrol, although all, whether failure was immediate or delayed, have had the administration of this medication.

In a recent communication summarizing postoperative results in 45 cases of prostatic cancer treated by orchiectomy, Huggins observed a considerable number of failures, some immediate and some delayed. In an effort to explain these failures on a basis of correlation with a microscopic finding in tissue removed from the primary neoplasm, he classified the primary tumors according to pathologic appearance into two groups: adenocarcinoma and undifferentiated carcinoma. All the deaths from carcinomatosis and the patients, with no or slight improvement after orchiectomy, had undifferentiated carcinoma, while in the more satisfactory cases the pathologic appearance was adenocarcinoma. He concluded that a clinical course following orchiectomy could be related to the cellular pattern and stated that without exception the tumor was undifferentiated in all those patients who died from carcinoma, while it was adenocarcinoma in those patients whose course was satisfactory.

Pathologic material has been examined in 53 of our cases and has been classified on a pathologic basis into the following two types as grouped by Huggins: first, the well differentiated adenocarcinoma, and, second, those cases in which undifferentiated carcinoma is seen, in which acinus formation is not noted although the cells are recognizable as having prostatic epithelial origin and occur in medullary strands. The following observations in relation to response following orchiectomy were made in this group of cases: Adenocarcinoma was found in 31 cases, of which 27 have had favorable responses while 5 responses have been unfavorable. One patient died of sepsis and cardiac decompensation and therefore should not be critically considered as a failure. Two patients have given a completely unfavorable response since the time of operation, and 2 have shown delayed failure, 1 having a return of symptoms after four months, the other at twenty-two months.

In the group of undifferentiated carcinomas there were 22 patients, with a favorable response in 16. Among the six failures, there are 2 who have died of carcinoma, 2 have had unfavorable response since orchiectomy and 2 have had delayed failure with a return of symptoms four months and eleven months after orchiectomy. It should be stated that many of the spectacular responses and some of the responses of longest duration thus far under observation have occurred in patients showing carcinomas of this type. Thus our observations in this series have not tended to substantiate those reported by Huggins in regard to correlation of neoplasm cell type.

Huggins found that severe hot flashes were seen in all of the cases favorably influenced by orchiectomy, but also were seen in certain of the unfavorable cases. Our observation in regard to hot flashes among the postorchiectomy cases are as follows: 1. There were 40 patients having hot flashes; of these, 30 were patients who had a favorable response while 10 were failures, 1 of whom is dead. 2. There were 32 patients having no hot flashes. Patients with favorable response having no hot flashes numbered 29, patients having no improvement 3. These observations suggest that hot flashes give little if any prognostic indication in this series of cases.

SUMMARY AND CONCLUSIONS

Seventy-five cases of prostatic cancer treated by orchiectomy and observed over periods of at least six months have been observed.

Elevation in the serum acid phosphatase level was observed in 39 per cent of the cases in which this determination was made.

Favorable response as determined by both subjective and objective criteria has been observed in 73 per cent of cases.

There have been 20 failures. Four patients have died of carcinoma and 1 from congestive failure and infection. Fifteen living patients are considered to be failures, 5 have shown no favorable response at any time following operation, while 10 are considered delayed failures, having enjoyed freedom from all subjective evidences of their disease for periods of three to twenty-two months before symptoms recurred after gonadectomy.

We have observed no satisfactory criteria for prognosticating the results of orchiectomy for carcinoma of the prostate.

The occurrence of 10 delayed failures in this series of cases with postoperative relapse at periods of from three to twenty-two months, offers disquieting implications regarding the ultimate outcome in any case.

Regardless of these implications or of the possibility of failure in some cases, it is evident that gonadectomy is a worthwhile procedure in advanced prostatic malignancy and should be recommended when the diagnosis is established.

We anticipate reporting again on this series of cases one year from now and it is hoped that other observers will continue their observations on similar series treated by other methods of endocrine control.

SERUM "ACID" PHOSPHATASE IN PATIENTS WITH CARCINOMA OF THE PROSTATE GLAND

PRESENT STATUS

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While investigating the source of "acid" phosphatases in urine,[1] Kutscher and Wolbergs in 1935 discovered [2] that normal human prostate tissue is extremely rich in an "acid" phosphatase. This observation did not appear at first to have any special significance, since there are many phosphatases and they are widely distributed in animal and plant tissues. Further study of the enzyme, however, led to interesting developments, among them a chemical method for the diagnosis of metastasizing prostate carcinoma, and the introduction by Huggins in 1941 of androgen control, an important new principle in the treatment of prostate carcinoma.

PROSTATIC "ACID" PHOSPHATASE AND PROSTATIC FUNCTION IN MAN

"Acid" phosphatase occurs in and is apparently elaborated by the acinar epithelium of the prostate gland, as Gomori [3] recently demonstrated by a special histochemical technic. The concentration of the enzyme in adult human prostate tissue is extraordinarily high (500 to 2,500 units activity per gram of fresh tissue), many hundred times that of any phosphatase in kidney, liver, duodenal mucosa or bone,[4] tissues in which some role of the phosphatases in cellular activities is generally conceded.

The enzyme does not appear in appreciable amount in human or monkey prostate tissue until puberty.[5] If puberty is produced precociously in immature rhesus monkeys by injection of testosterone propionate, maturation of the prostatic epithelium is accompanied by a rapid, several hundred-fold increase in "acid" phosphatase content to adult levels.[6] High concentration of the enzyme seems to be an indication of physiologic maturity of the prostatic epithelium in man and the monkey.[6]

Prostatic "acid" phosphatase normally is excreted as a constituent of the prostatic fluid,[1] high concentrations being present in human seminal plasma ($3{,}700 \pm 500$ units to 700 ± 150 units per cubic centimeter in different individuals).[7] Inseminated ejaculates constitute a medium suitable for effective action of "acid" phosphatase as they contain large amounts of the enzyme, a favorable milieu provided by the slightly acid p_H of adult vaginal secretions, and potential phosphoric ester substrates.

The facts cited imply that prostatic "acid" phosphatase has some distinct physiologic function. The precise nature of this function is not known. It seems unlikely that the enzyme is active in the prostate gland (aside from contributing to the formation of prostatic corpora amylacea and calculi [8]); it acts probably only after it is secreted in the ejaculate. It further seems unlikely that the action of the enzyme in semen is directly on the sperm and therefore of very general significance; for "acid" phosphatase occurs in very high concentration only in the prostate gland of man and the monkey, whereas cat, rabbit, guinea pig and rat prostate tissue contain but traces [8] and dog prostate tissue only moderate amounts.[9] The enzyme perhaps participates in metabolic processes providing energy required by human sperm for prolonged motility in inseminated ejaculates.[10] In man this energy is derived largely from the degradation of dextrose or glycogen [11] (in some other animals certain noncarbohydrate substances are utilized) and it is known that "acid" phosphatases elsewhere in the body catalyze dephosphorylation of phosphoric esters in the course of glycolysis (glycogenolysis). Further work along these lines is needed to throw light on that function of the prostate gland which in man appears to be mediated by the enzyme "acid" phosphatase.

"ACID" PHOSPHATASE ACTIVITY OF CARCINOMATOUS PROSTATE TISSUE

Apart from occasional highly undifferentiated prostatic tumors which do not elaborate the enzyme,[12] carcinomatous prostate tissue contains large amounts of "acid" phosphatase.[13] This holds not only for tumor tissue at the primary site but also for distant metastases. The presence of so much "acid" phosphatase in metastases secondary to prostate carcinoma may have some causal relation to the osteoplastic character of most such metastases to bone [12] but the mechanism of this relation is still obscure: the osteoplastic reaction is not due directly to the "acid" phosphatase of the metastasizing tumor tissue but to the increased "alkaline" phosphatase activity of the bone involved.

When carcinomatous prostate tissue metastasizes, invasion of lymph or blood channels is accompanied by escape of the prostatic secretion into the circulation; under these circumstances prostatic fluid becomes, so to speak, an internal as well as an external secretion. Because of its high "acid" phosphatase content, the prostatic secretion present in blood can readily be detected by means of appropriate chemical methods for estimating the "acid" phosphatase activity of blood serum, which is increased by influx of the prostatic enzyme. This forms the theoretical basis for the now widely used determination of serum "acid" phosphatase activity in the differential diagnosis of metastasizing prostate carcinoma. The method is an interesting example of the possibility of establishing the primary

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Read in the Symposium on "Treatment of Carcinoma of the Prostate Gland" before the Section on Urology at the Ninety-Third Annual Session of the American Medical Association, Atlantic City, N. J., June 12, 1942.

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source of a disseminated carcinoma by chemical identification of its specific enzymic secretion in the blood stream.

The high "acid" phosphatase content of most prostatic carcinomas indicates that these tumors are not composed of functionally embryonal cells (since immature prostatic tissue is virtually devoid of the enzyme) but represent a type of malignancy made up of physiologically mature epithelial tissue. Huggins and his associates [14] were the first to grasp the therapeutic implications of this fact. They reasoned that, since normal adult prostatic epithelium can be made to atrophy by reducing the amount or neutralizing the effect of androgenic hormones, it might be possible to produce atrophy of malignant adult prostatic epithelium by castration or injection of estrogens. The validity of this deduction was demonstrated by a rapid pronounced fall in serum "acid" phosphatase [14] and by striking symptomatic improvement in most patients with metastasizing prostate carcinoma so treated.[15] The tion of breast carcinoma to gonadal hormones (thus far [17] with no more than the limited therapeutic results obtained heretofore) and in applications to other tumors.

"ACID" PHOSPHATASE ACTIVITY OF BLOOD SERUM

Normal human serum contains very small amounts of "acid" phosphatase,[18] less than 2.5 units activity per hundred cubic centimters of serum as determined by an adaptation [19] of the King and Armstrong method for "alkaline" phosphatase. This normally occurring enzyme is not of prostatic origin: it is present in females as well as males, in children as well as adults, and its enzymic properties differ in significant though minor respects from those of prostatic "acid" phosphatase. Possible sources are liver, spleen, bone and kidney, all of which are known to elaborate "acid" phosphatases.

In 1938 the Gutmans [20] and Barringer and Woodard [21] independently noted increased serum "acid" phosphatase levels in patients with metastasizing prostate

TABLE 1.—*Percentile Distribution of Serum "Acid" Phosphatase Values in Cases of Prostate Carcinoma With and Without Metastases, and in Other Conditions*

	Diagnosis	No. of Cases Studied	Percentage of Cases with Levels of Serum "Acid" Phosphatase (Units per 100 Cc. of Serum)					
			Less Than 3	3 to 4.9	5 to 9.9	10 to 100	100 to 1,000	More Than 1,000
Series of Sullivan and the Gutmans 1941	I. Prostate carcinoma	260						
	a. Bone metastases by x-ray	130	15%	12%	23%	35%	9%	4%
	b. No bone metastases by x-ray	70	80%	11%				
	II. Benign prostatic hypertrophy	75	100%					
	III. Prostatitis	10	100%					
	IV. Nonprostatic diseases	570	90%	7.5%	2.5%			
	V. Normal	30	100%					
			Less Than 4	4 to 6	6.1 to 10	10 to 100	100 to 1,000	More Than 1,000
Series of Herger and Sauer 1942	I. Prostate carcinoma	147						
	a. Bone metastases demonstrable by x-ray or suspected	47	9%	4%	36%	36%	19%	9%
	b. No x-ray or clinical evidence of metastases	100	77%	22% *	1%			
	II. Control patients	283	92.5%	7.5%				

* Only 8 per cent consistently gave serum "acid" phosphatase values between 4 and 6 units.

amelioration of clinical symptoms produced by estrogens was noted independently by Herbst.[16] Final judgment of the value of treatment of metastatic prostate carcinoma by androgen control must await further experience, but it is already apparent that the clinical response in most patients is far more satisfactory than with any other form of therapy.

The effect of castration and estrogens in metastatic prostate carcinoma constitutes what is perhaps the most rigorous proof yet submitted that malignancy is not necessarily the result of an irreversible urge to grow intrinsic to the tumor cell but may be due in part to stimulation by extrinsic (in this instance endocrine) agents which are subject to some measure of therapeutic control. The results have renewed interest in the relacarcinoma, the increase being due to the appearance in serum of an enzyme with properties corresponding to those of prostatic tissue "acid" phosphatase.[20] The applicability of this observation to diagnosis, prognosis and evaluation of treatment in prostate carcinoma has been the subject of many studies.[22] Table 1 sum-

14. Huggins, Charles, and Hodges, C. V.: Studies on Prostatic Cancer: I. The Effect of Castration, of Estrogen and of Androgen Injection on Serum Phosphatases in Metastatic Carcinoma of the Prostate, Cancer Research **1**: 293 (April) 1941.

15. Huggins, Charles; Stevens, R. E., Jr., and Hodges C. V.: Studies on Prostatic Cancer: II. The Effects of Castration on Advanced Carcinoma of the Prostate Gland, Arch. Surg. **43**: 209 (Aug.) 1941. Huggins Charles; Scott, W. W., and Hodges, C. V.: Studies on Prostatic Cancer: III. The Effects of Fever, of Desoxycorticosterone and of Estrogen on Clinical Patients with Metastatic Carcinoma of the Prostate, J. Urol. **46**: 997 (Nov.) 1941. Hdggins, Charles: Effect of Orchiectomy and Irradiation on Cancer of the Prostate, Ann. Surg. **115**: 1192 (June) 1942.

16. Herbst, W. P.: The Effects of Estradiol Dipropionate and Diethylstilbestrol on Malignant Prostatic Tissue, Tr. Am. A. Genito-Urin. Surgeons **34**: 195, 1941.

17. Farrow, J. H., and Woodard, Helen Q.: The Influence of Androgenic and Estrogenic Substances on the Serum Calcium in Cases of Skeletal Metastases from Mammary Cancer, J. A. M. A. **118**: 339, (Jan. 31) 1942.

18. Gutman, A. B., and Gutman, Ethel B.: "Acid" Phosphatase Activity of the Serum of Normal Human Subjects, Proc. Soc. Exper. Biol. & Med. **38**: 470 (May) 1938. Woodard, H. Q.: Acid and Alkaline Glycerophosphatase in Tissue and Serum, Cancer Research **2**: 497 (July) 1942.

19. Gutman, Ethel B., and Gutman, A. B.: Estimation of "Acid" Phosphatase Activity of Blood Serum, J. Biol. Chem. **136**: 201 (Oct.) 1940.

20. Gutman, A. B., and Gutman, Ethel B.: An "Acid" Phosphatase Occurring in the Serum of Patients with Metastasizing Carcinoma of the Prostate Gland, J. Clin. Investigation **17**: 473 (July) 1938.

21. Barringer, B. S., and Woodard, H. Q.: Prostatic Carcinoma with Extensive Intraprostatic Calcification, with a Discussion of the Possible Role to Prostatic Phosphatase, Tr. Am. A. Genito-Urin. Surgeons **31**: 363, 1938.

22. Müller, J.: Over phosphatasen in het serum, Thesis, Amsterdam, 1938; Phosphatase in Serum, Nederl. tijdschr. v. geneesk. **84**: 2431, 1940. Herger, C. C., and Sauer, H. R.: Relationship of Serum Acid Phosphatase Determination to Presence of Bone Metastases from Carcinoma of Prostate, J. Urol. **46**: 286 (Aug.) 1941. Owen, P. S.: Blood "Acid" Phosphatase Determinations: Report from the Pratt Diagnostic Hospital, Bull. New England M. Center **3**: 262 (Oct.) 1941. Gutman,[20] Robinson and Gutman.[25] Herger and Sauer.[26] Huggins and Hodges.[14] Huggins, Stevens and Hodges.[15] Huggins, Scott and Hodges.[15] Huggins,[15] Wishard.[28] Marquardt and Flaherty.[29]

marizes the data obtained in the two most extensive of such investigations,[23] in which the same technic[19] was employed. Elevated values, for the most part higher than encountered in any other disease, were obtained in about 85 per cent of a total of 177 cases of proved or suspected metastatic prostate carcinoma. About 90 per cent of patients with prostate carcinoma but without roentgenographic evidence of bone involvement gave values consistently less than 3 units (less than 4 units in the series of Herger and Sauer), as did all normal subjects, all patients with prostatic disease other than carcinoma and more than 90 per cent of a total of 853 cases of nonprostatic disease. In general, the determination has been reported by most investigators to be sufficiently consistent and specific to be useful, but some found the technical demands of the method too exacting and the results erratic and more confusing than helpful.

Apart from technical errors, the test may fail in patients with metastasizing prostate carcinoma because (1) the tumor tissue may elaborate so little "acid" phosphatase (owing either to pronounced anaplasia or to low endogenous androgen levels) that insignificant amounts of the enzyme are secreted into the circulating fluids; (2) invasion of blood or lymph channels may be insufficient for escape of enough prostatic fluid into the blood, particularly in early cases or in cases in which the tumors produce little enzyme; (3) the "acid" phosphatase level may have been depressed by such treatment as injection of estrogens, castration, radical prostatectomy or intensive irradiation. The use of serum which has been allowed to stand too long results in low values, since the "acid" phosphatase level of shed blood slowly falls.

Falsely high serum "acid" phosphatase values occurring in patients with diseases other than metastatic prostate carcinoma most commonly result from the use of hemolyzed serums. (Erythrocytes normally contain very large amounts of erythrocyte "acid" phosphatase, which on hemolysis diffuses into the plasma and raises the serum "acid" phosphatase level.)[24] Slight to moderate increases in serum "acid" phosphatase, rarely over 5 or 6 units, not over 10 units, are encountered occasionally in nonhemolyzed serums of patients with nonprostatic disease; most frequently in advanced Paget's disease, carcinoma of the female breast with extensive bone metastases, hyperparathyroidism with pronounced skeletal involvement, and osteopetrosis. The slight rise in serum "acid" phosphatase in these conditions appears to be due largely to mobilization of the "acid" phosphatase of bone.[12]

There is no general agreement at present as to the critical "acid" phosphatase level of the serum which may be accepted as diagnostic of prostate carcinoma with metastases. This is an empirical, in part quite arbitrary, figure subject to variation according to the methods and experience of different laboratories. Data obtained with the adapted King and Armstrong method as summarized in table 1 indicate that values below 3 units per hundred cubic centimeters represent negative, those over 10 units per hundred cubic centimeters definitely positive, results of the test. A very large proportion of proved cases of metastatic prostate carcinoma, however, have serum "acid" phosphatase levels less than 10 units per hundred cubic centimeters. Results consistently between 5 or 6 units and 10 units may be regarded as indicative of metastasizing prostate carcinoma unless there is substantial clinical or x-ray evidence to the contrary. Values between 3 or 4 units and 5 or 6 units are borderline figures, though usually of diagnostic value. Their interpretation depends in part on the clinical, roentgenographic and other chemical findings, in part on the trend in serum "acid" phosphatase levels observed in follow-up studies.

Sullivan[12] recently introduced a provocative androgen test to facilitate interpretation of borderline values. This test is based on the observation[14] that injection of androgen causes a rise in serum "acid" phosphatase in patients with prostate carcinoma that has already metastasized. Testosterone propionate is administered in daily doses of 25 mg. for five days, and it is then determined whether or not a significant rise above the initial serum "acid" phosphatase level has occurred.

As indicated in table 1, there is very wide dispersion of the serum "acid" phosphatase values encountered in different cases of metastatic prostate carcinoma: from less than 4 units to more than 1,000 units per hundred cubic centimeters of serum. No correlation can be made out between the level of serum "acid" phosphatase and the extent, type or location of metastatic involvement, as far as this can be judged in roentgenograms. However, follow-up studies of any 1 patient with prostate carcinoma[23] indicate that the development of metastases is accompanied by a rise in serum "acid" phosphatase above normal levels and that subsequent spread of secondary involvement is accompanied by further increases in serum "acid" phosphatase activity. In this sense the determination has prognostic significance. Herger and Sauer[26] found that the average period of survival of untreated patients with serum "acid" phosphatase values above 100 units per hundred cubic centimeters was significantly shorter than in cases with levels below that figure.

There is no correlation between serum "acid" and "alkaline" phosphatase levels in patients with prostate carcinoma except that both are normal before dissemination of the tumor and both are usually above the normal maximum after metastatic spread has occurred. The increase in serum "alkaline" phosphatase is of osseous origin[13] and reflects the extent and vigor of the osteoplastic reaction of bone at the site of skeletal metastases; if the liver also is involved, a further increase in serum "alkaline" phosphatase may result from obstruction to excretion of the enzyme in the bile. The rise in serum "alkaline" phosphatase is unspecific, being common to conditions characterized by widespread, accelerated osteoblastic activity or by obstruction of the biliary tract. The increase in serum "acid" phosphatase, on the other hand, is a more specific and constant manifestation of metastasizing prostate carcinoma. The "acid" phosphatase derives from the tumor tissue itself (though a small fraction in cases with extensive skeletal involvement may be mobilized bone "acid" phosphatase) and the level in serum is determined by the volume of neoplastic tissue and its capacity to form the enzyme, the extent of invasion of the tumor, the endogenous androgen level and similar

23. Herger and Sauer.[26] Sullivan and Gutman.[12]

24. Gutman, Ethel B., and Gutman, A. B.: Erythrocyte Phosphatase Activity in Hemolysed Sera and Estimation of Serum "Acid" Phosphatases, Proc. Soc. Exper. Biol. & Med. **47**: 513 (June) 1941.

25. Robinson, J. N.; Gutman, Ethel B., and Gutman, A. B.: Clinical Significance of Increased Serum "Acid" Phosphatase in Patients with Bone Metastases Secondary to Prostatic Carcinoma, J. Urol. **42**: 602 (Oct.) 1939. Herger and Sauer.[26]

26. Herger, C. C., and Sauer, H. R.: Further Observation on Serum Acid Phosphatase Activity in Carcinoma of the Prostate, Cancer Research **2**: 398 (June) 1942.

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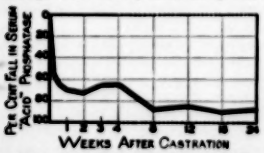
factors. The difference in origin of the two enzymes in serum is brought out with great clarity by their contrasting responses to castration.

CLINICAL APPLICATIONS OF THE SERUM "ACID" PHOSPHATASE DETERMINATION

The method is incapable of detecting prostate carcinoma which has not yet metastasized and is therefore of no value in the important problem of differentiating that condition from benign prostatic hypertrophy. Even in experienced hands the test fails in a significant though small proportion of patients with metastasizing prostate carcinoma. Moreover, there is enough overlapping of values in nonprostatic cases to give occasional falsely positive results. Despite these limitations, however, the determination has proved to be a useful adjunct to the usual urologic procedures, as indicated in the following summary of a more than four year period of clinical trial at the Squier Urological Clinic:[12]

The most common function of the test in diagnosis was to corroborate by an independent, objective method the diagnosis of metastasizing prostate carcinoma made in patients with clinical indications of prostate carcinoma and roentgenographic evidence of metastases. The determination was often particularly helpful when interpretation of roentgenograms as regards the presence of metastases was inconclusive; at times the chemical determination made it possible to establish that metastatic spread had occurred months before this could be accomplished by use of x-rays. Differentiation of Paget's disease from osteoplastic metastases secondary to prostate carcinoma was facilitated by the test.[27] In patients known to have metastases to the bones, lungs, brain or elsewhere, with the origin of the primary tumor in doubt, it was possible by this method to establish whether the primary tumor was or was not carcinoma of the prostate gland, a matter now of more than academic interest.

The test proved useful also in determining the treatment of choice in patients known or suspected to have prostate carcinoma. A definitely and consistently increased serum "acid" phosphatase level was found to be a generally reliable contraindication to radical prostatectomy, even if evidence for metastases in roentgenograms was wanting or equivocal; the finding of normal levels encouraged radical surgery by reducing though not wholly excluding the possibility of extracapsular extension. As a follow-up measure after prostatectomy, the test was helpful in detecting or ruling out metastatic spread of tumors recurring in the prostatic bed. With the introduction of treatment by androgen control, the determination of serum "acid" phosphatase became an almost indispensable guide to the selection of patients for castration, the regulation of estrogen therapy and the critical evaluation of results with these several forms of treatment.



Effect of castration on serum "acid" phosphatase levels in 30 patients with metastasizing prostate carcinoma. The heavy line represents the average postoperative fall in serum "acid" phosphatase, expressed in percentage of the preoperative level.

SERUM "ACID" AND "ALKALINE" PHOSPHATASE LEVELS IN PATIENTS WITH METASTASIZING PROSTATE CARCINOMA TREATED BY CASTRATION OR BY ESTROGENS

The determination of serum "acid" phosphatase activity offers a means for objective serial studies of the effect of gonadal and other hormones on patients with metastatic prostate carcinoma.[14] It was this consideration that led Huggins to turn from a study of castration in patients with benign prostatic hypertrophy (a problem which, largely for lack of suitable objective criteria, has been investigated for more than a half century with but indifferent success) to metastatic prostate carcinoma.

TABLE 2.—*Effect of Castration on Serum "Acid" and "Alkaline" Phosphatases in Two Patients with Metastatic Prostate Carcinoma*

	Case T. B.		Case L. B.	
	"Acid" Phosphatase, Units per 100 Cc.	"Alkaline" Phosphatase, Bodansky Units per 100 Cc.	"Acid" Phosphatase, Units per 100 Cc.	"Alkaline" Phosphatase, Bodansky Units per 100 Cc.
Preoperative	80.6	43.3	44.8	12.4
Postoperative				
2 days	68.6	31.6	45.8	9.8
4 days	42.2	31.1	37.0	12.1
1 week	21.1	38.3	35.0	15.1
2 weeks	....	....	39.3	17.3
3 weeks	7.4	32.1	42.5	15.2
4 weeks	...	....	35.7	12.0
8 weeks	3.0	23.7	50.0	10.2
12 weeks	4.1	13.4	262.0	23.6
16 weeks	3.6	8.3	740.0	33.9

T. B. illustrates typical results when the clinical response proves to be very satisfactory; L. B. is illustrative of a refractory case, with death occurring six months after castration.

Huggins and Hodges[14] found that in 7 of 8 cases of metastatic prostate carcinoma subjected to castration there was a sharp postoperative reduction in serum "acid" phosphatase to or toward the normal range; the serum "alkaline" phosphatase values rose following castration and then declined, more slowly than the serum "acid" phosphatase levels. In their case P. R., for example, the serum "acid" phosphatase fell from 26 to 5 units in seven days after castration, the "alkaline" phosphatase rose from 19 to a maximum of 41 units thirty-nine days after operation and was 20 units one hundred and four days after operation. In most instances these chemical changes were accompanied by pronounced, in some cases dramatic, clinical improvement.

Further data have been recorded by Sullivan and the Gutmans.[12] Castration in almost all of 31 cases of metastatic prostate carcinoma was followed by an early precipitous fall in serum "acid" phosphatase, often demonstrable after twenty-four hours, as shown in the chart. On the second postoperative day the mean decline was 55 per cent of the preoperative level, on the fourth day 64 per cent, the downward trend continuing until often temporarily arrested about the third week (occasionally in the second or fourth week) by a transient secondary rise. Thereafter the "acid" phosphatase usually showed a prolonged further decline until equilibrium was reached after several months. The final equilibrium level was 5 units per hundred cubic centimeters or less when the preoperative values

27. Gutman, A. B.; Gutman, Ethel B., and Robinson, J. N.: Determination of Serum "Acid" Phosphatase Activity in Differentiating Skeletal Metastases Secondary to Prostatic Carcinoma from Paget's Disease of Bone, Am. J. Cancer **28**: 103 (Jan.) 1940.

did not exceed 20 or 30 units but was apt to be considerably higher in patients with very pronounced preoperative elevations. The prognostic significance of such persistent postoperative increases in serum "acid" phosphatase (which Huggins and Hodges attribute to extragonadal androgens) is not yet clear.

For the first four days or week following castration, the serum "alkaline" phosphatase showed little change or fluctuated erratically, often falling below the initial value. After this latent period the values increased, usually during the second or third postoperative week, often to more than twice the preoperative level. A gradual decline then set in until, months after operation, equilibrium was reached at serum "alkaline" phosphatase levels usually nearer normal than those prior to castration.

While sufficient data are not yet at hand, there appears to be a significant parallelism between the response of the serum phosphatases and the clinical results of castration (table 2). Whereas clinical judgment of the success or failure of the operation may not be possible for weeks or months, however, it can generally be determined within forty-eight or seventy-two hours whether or not the chemical response will be satisfactory.

As regards the effect of estrogens on the serum phosphatases in patients with metastatic prostate carcinoma, only meager data are available.[28] These make it clear, however, that estrogens in appropriate dosage generally cause a fall in serum "acid" phosphatase and a delayed rise in serum "alkaline" phosphatase. Regulation of dosage and objective appraisal of results in noncastrated or castrated subjects treated with estrogens are facilitated by (technically adequate) serial "acid" phosphatase determinations.

Irradiation of the testes has been advocated in cases of prostate carcinoma with metastases,[29] but very little is known, as yet, about the clinical and chemical results of treatment.[30]

The gaps in this outline indicate how much remains to be learned about the effects of various methods of androgen control on serum "acid" and "alkaline" phosphatase levels in patients with metastatic prostate carcinoma. Such chemical studies may be expected to provide objective criteria in the solution of clinical problems of current interest. These include the relative value of the several methods of androgen control, their specific indications, the operative technic of choice in castration, the optimal dosage of estrogens and the management of patients who respond transiently or not at all to castration or to estrogens.

620 West One Hundred and Sixty-Eighth Street.

28. Wishard, W. N.: The Clinical Use of Stilbestrol in the Treatment of Carcinoma of the Prostate, Quart. Bull. Indiana Univ. M. Center **4**: 5, (Jan.) 1942. Marquardt, C. R., and Flaherty, W. A.: Carcinoma of the Prostate Gland, with Special Reference to Endocrine Treatment, Urol. & Cutan. Rev. **46**: 343 (June) 1942. Huggins and Hodges,[14] Huggins, Scott and Hodges.[15]

29. Munger, A. D.: Treatment of Carcinoma of Prostate with Irradiation of Testicles, J. Urol. **46**: 1007 (Nov.) 1941.

30. My own experience is limited to 2 patients, who received sterilization courses of 1,200 roentgens. One, H. W., had little relief of his presenting difficulties in urination and an unsatisfactory decline in serum "acid" phosphatase from 9.6 to 6.6 units per hundred cubic centimeters. Subsequent castration resulted in pronounced shrinkage of the enlarged prostate gland with striking symptomatic improvement and a persistent fall in serum "acid" phosphatase to 1.7 units per hundred cubic centimeters. The other patient, J. D., showed only transient clinical benefit after irradiation and continued elevation of serum "acid" phosphatase (7.9 units per hundred cubic centimeters). Following subsequent administration of diethylstilbestrol he improved enough to resume light work. His serum "acid" phosphatase has been maintained at 2.2 units per hundred cubic centimeters.

BIOCHEMICAL THERAPEUSIS IN CARCINOMA OF THE PROSTATE GLAND

PRELIMINARY REPORT

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The treatment of cancer of the prostate by means of alteration of the soil on which the cancer cells develop through the administration of diethylstilbestrol or estradiol dipropionate or by castration or both offers promise of being one of most helpful contributions in recent years toward the goal of biochemical control of malignant disease.

Contributions in the field of fundamental human biochemistry, including individual cell chemical composition and modification of vital processes in various types of cells through various physical and chemical application, are numerous.

Cholesterol is a key substance which is found in every cell and every fluid of the human body. On this

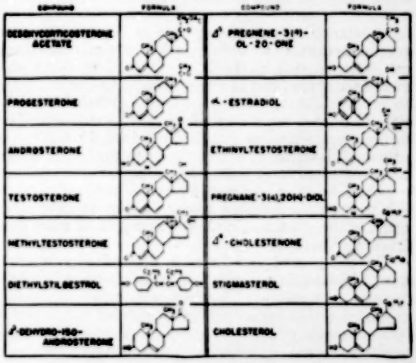

Fig. 1.—Structural formulas.

cholesterol base are built many steroid hormones which have profound influence on most genital organ cells but to a lesser degree on every cell.

In most of the group of chemical formulas appearing in figure 1, the identical base cholesterol may be noted. Despite the very slight difference in structure between estradiol and testosterone, these two substances have opposite effects on breast and prostatic epithelial cells.

Huggins [1] has demonstrated that (1) castration in man decreases the height of prostatic epithelial cells in

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Read in the Symposium on "Treatment of Carcinoma of the Prostate Gland" before the Section on Urology at the Ninety-Third Annual Session of the American Medical Association, Atlantic City, N. J., June 12, 1942.

Drs. Dardiniski Kelso and James Ash, Colonel, M. C., U. S. Army, cooperated in the pathologic studies. Drs. Charles D. Lenhoff, W. B. Lyles and Harold R. Reed of Gallinger Municipal Hospital cooperated in the clinical observation and roentgen examination. The Ciba Company provided the estradiol dipropionate. The Research Department of the Winthrop Chemical Company provided the diethylstilbestrol. Dr. Tomas Cajigas, the U. S. Naval Hospital Laboratory and the National Cancer Research Institute assisted in the phosphatase studies.

1. Huggins, Charles, and Clark, P. J.: Quantitative Studies of Prostatic Secretion, J. Exper. Med. **72**: 747-762, 1940. Huggins, Charles; Stevens, R. E., Jr., and Hodges, C. V.: Studies on Prostatic Cancer, Arch. Surg. **43**: 209-223 (Aug.) 1941. Huggins, Charles, and Hodges, C. V.: Studies on Prostatic Cancer, Cancer Research **1**: 293-297 (April) 1941.

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normal prostatic tissue, (2) testosterone stimulates secretory activity of dogs' prostatic cells and diethylstilbestrol inhibits this activity, (3) acid phosphatase in cancer of the prostate with metastasis is elevated and (4) castration in man has so far produced spectacular response in the relief of pain and apparent stabilization or regression of local and metastatic lesions of the osseous system, also chest.[2] He refers to the production of pituitary tumors by injecting large doses of estrogen in animals. Estrogen reduced androgen in 2 postcastration patients. He believed that continued androgen reduction is necessary to keep the activity of cancer cells controlled and that castration is the method of choice.

Kutscher and Wolbergs,[3] Gutman, Sproul, Barringer and Woodard [4] and Herger and Sauer [5] have also contributed brilliantly in the phosphatase research field.

CLINICAL OBSERVATIONS

In August 1940 a patient presented himself with a large malignant prostate and symptoms of nocturia (ten to twelve times) with very painful drop by drop micturition and in very poor physical condition. Having seen the exhibit of Drs. Huggins, Clark and Scott

Fig. 2.—Gradual clearing of osseous involvement over a period of 8 months.

at the American Medical Association meeting in June 1940, in which the effects of diethylstilbestrol on a dog's hyperplastic prostate was demonstrated, it occurred to me that, if this substance had this effect on hyperplastic epithelium, it might have some influence on the cancer cells that come from these cells. I injected 1 mg. of estradiol dipropionate into the deltoid and was surprised to learn forty-eight hours later that instead of getting up ten or twelve times the night before he had gotten up only five times, and, instead of painful dribbling dysuria, free painless voiding occurred. From that time until May 20, 1942 (twenty-two months) this patient has remained perfectly comfortable with the exception of occasional periodic increase in nocturia. Most of the time his nocturia amounts to three or four times and is always free and easy. The nocturia is dependent on the total amount of urine which he puts out and is variable. He has received 153 doses of 1 mg. of estradiol dipropionate over a period of twenty-two months. The gland gradually has reduced in size from the size of a fist to a sausage-like mass the size of an index finger with a small knob at the top and at the bottom. His breasts have been enlarged and tender, and his penis and testicles have

Fig. 3.—Tissue from site of prostate.

become reduced considerably in size. The phosphatase has remained below the upper level of normal. He is in excellent general health today.

Following this striking early experience and learning the observations of Dr. Huggins in June 1941, 20 more patients have been observed who have been treated with estradiol dipropionate or diethylstilbestrol, have been castrated, or both. Five patients received estradiol dipropionate, 8 received diethylstilbestrol, 8 were castrated, and of the 8 who were castrated 3 received diethylstilbestrol and 1 estradiol dipropionate before the castration, which leaves 4 patients who were treated by means of castration alone. Five of the cancers that were treated with estrogens alone were

Fig. 4.—Tissue of metastasis in adrenal.

of the Bumpus [6] type; that is, the very slow growing type, which seems to have a long expectancy. Of the Bumpus type group 3 were given diethylstilbestrol and 2 estradiol dipropionate and it was given symptomatically only; that is, for the relief of frequency or dysuria or interference with micturition or pain.

2. Alyea, E. P.: Castration for Carcinoma of the Prostate, read before the annual meeting of the American Urological Association, New York, June 1, 1942.

3. Kutscher, W., and Wolbergs, H.: Prostatic Phosphatase, Ztschr. f. physiol. Chem. **236**: 237-240, 1935.

4. Barringer, D. S., and Woodard, H. Q.: Prostatic Carcinoma with Extensive Intraprostatic Calcification, Tr. Am. A. Genito-Urin. Surgeons **31**: 363-369, 1938.

5. Herger, C. C., and Sauer, H. R.: Relationship of Serum Acid Phosphatase Determination to Presence of Bone Metastasis from Carcinoma of Prostate, J. Urol. **46**: 283-286 (Aug.) 1941.

6. Bumpus, H. C., Jr.: Carcinoma of the Prostate: Clinical Study of One Thousand Cases, Surg., Gynec. & Obst. **43**: 150-155 (Aug.) 1926.

All of the castration patients experienced spectacular relief of pain from the local growth or metastasis. Five of these castrated patients had osseous metastasis and 2 had edema of the lower extremities. One of the castration patients was operated on when in extremely poor general condition and the operation was followed

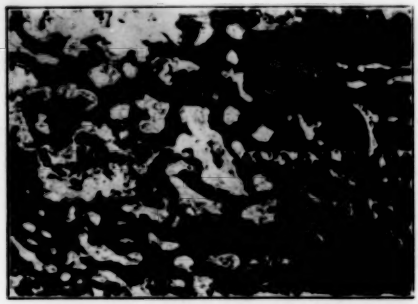

Fig. 5.—Tissue of previously involved vertebrae but without demonstrable malignant cells.

by a most spectacular convalescence. There was no acceleration or further development of the local growth or of metastasis in any of the castration patients.

Phosphatase studies on 11 patients followed the observation of Huggins,[1] Gutman [2] and others. In all but 2 instances they were elevated in the presence of osseous metastasis or when the local growth was extensive. Two patients with extensive metastasis had no elevation.

DOSE

The dose to be employed has been 1 mg. and not more than three times a week up until very recently. The selection of this dose was determined on with the feeling that it was a conservative dose and one which would not have too great a likelihood of too severely

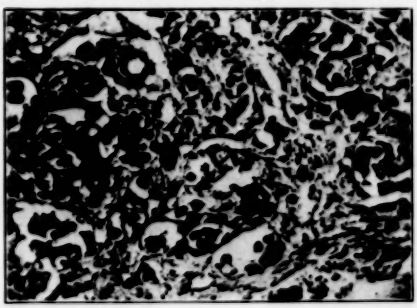

Fig. 6.—Tissue from prostate which grew very rapidly during administration of diethylstilbestrol.

upsetting the endocrine balance. In using endocrines it must be remembered that the dosage is not accompanied by an effect comparable to the amount given as with pharmacodynamic drugs. This dose of 3 mg. a week has been varied sometimes and a periodicity which seems particularly suited to the individual treated has been maintained. I have found that this periodicity sometimes varies in the same individual. I do not feel that large doses, that is 3 to 5 mg. a day, are indicated in more than a small proportion of instances. Recently I have changed my mind with regard to using more than 1 mg. at a dose, owing to the fact that Dr. Richard Gill of Wheeling, W. Va., told me of a patient who failed to respond to a dose of 1 mg. three times a week but, on being given 5 mg. a day, was made entirely comfortable. Following this information from Dr. Gill I had one experience in which increasing the dose from 1 mg. of diethylstilbestrol three times a week to 3 mg. a day materially relieved pain which previously did not respond. Other more recent experiences with larger dosage have been reported by Alyea,[7] Chute [8] and Wishard.[9] Alyea has given 3 mg. daily, as has Wishard. Chute gives 10 mg. daily after orchiectomy with no untoward effects so far.

Neslbit [10] has given 3 mg. daily in treating benign hyperplasia and he has seen 3 patients die of cerebral

Fig. 7.—At right, freedom from osseous involvement on Jan. 10, 1941. At left, extensive involvement of spine and pelvis by May 5, 1941.

hemorrhage of about 15 treated. Although Dr. Neslbit does not feel that there was any relationship to therapy, I have the feeling that there may have been, through the production of a lessening of tensile strength of the cells in the blood vessel walls due to diethylstilbestrol.

Dr. Wishard reports that he has used diethylstilbestrol on all patients suffering with cancer of the prostate who have been seen at the Indiana University Medical Center since July 11 of last year, whether they have primary carcinoma of the prostate or evidence of metastasis. "It has been well tolerated and no instance of complete failure to obtain some symptomatic relief has been noticed." Dr. Wilbur Haines of Philadelphia told me of a patient whom he was treating with estradiol dipropionate who responded very nicely as far as his prostatic carcinoma was concerned but who developed a cancer of the brain which on exploration proved to be malignant but not prostatic in type.

7. Robinson, J. N.; Gutman, E. B., and Gutman, A. B.: Clinical Significance of Increased Serum Acid Phosphatase in Patients with Bone Metastases Secondary to Prostatic Carcinoma, J. Urol. 42: 602-618 (Oct.) 1939.

8. Chute, Richard; Willetts, A. T., and Gens, J. P.: Experiences in Treatment of Carcinoma of the Prostate with Castration and Stilbestrol, read before the annual meeting of the American Urological Association, New York, June 1, 1942.

9. Wishard, W. N., Jr.: The Clinical Use of Stilbestrol in the Treatment of Carcinoma of the Prostate, Quart. Bull. Indiana Univ. M. Center 4: 5-9, 1942.

10. Neslbit, Reed: Personal communication to the author.

Metaplasia of the prostate, producing enlargement of the prostate, has been produced in man by Huggins through the administration of large doses of diethylstilbestrol and in various animals by Deming and others.

These data have changed my policy to one of giving 1 mg. of estradiol dipropionate or diethylstilbestrol by hypodermic injection to start with. This dose is then decreased or increased as the symptomatic relief of the individual demands.

FURTHER OBSERVATIONS

Certain phenomena have been observed which are of interest. One patient treated with estradiol dipropionate had a purpuric syndrome with no explanation in the blood studies. The purpuric syndrome disappeared in forty-eight hours after the administration of 15 grains (1 Gm.) of calcium gluconate after meals. After calcium gluconate was discontinued he developed a subconjunctival hemorrhage, which rapidly regressed on the resumption of calcium gluconate. Since that time this particular patient has been kept on a dose of 15 grains of calcium gluconate daily.

It has been of interest to note that the amount of urine excreted during the twenty-four hour period and particularly during the nocturnal twelve hours has been definitely reduced in many instances. This has also been observed in patients treated with estrogens for benign hyperplasia. This decrease in the amount of urine secreted partially explains the reduction in frequency among patients under this treatment. This phase of the problem should form the basis of an interesting research problem.

Fig. 8.—Nipple of breast removed from this patient. Note well developed erectile muscle tissue typical of female breast.

The prostatic mass regressed spectacularly in some patients, moderately in some, and not to any appreciable degree in others. In 1 patient on whom we had the opportunity of getting an autopsy following death by pneumonia eight months after castration and previous administration of diethylstilbestrol the prostatic mass was so small that it could hardly be recognized. There were malignant cells present microscopically in the tissue removed from the prostatic site (figs. 2, 3, 4 and 5).

There was 1 instance in which carcinoma seemed to involve the osseous system like wildfire while the patient was being given 1 mg. of diethylstilbestrol three times a week (figs. 6 and 7).

In 1 patient who was on a regimen of 12 units of protamine zinc insulin a day to control diabetes, castration changed the diabetic situation so that he has not needed any further insulin since castration, which was done ten months ago (figs. 6 and 7).

Figures 8 and 9 demonstrate a gynecomastia in a patient who had forty-five injections of 1 mg. each of diethylstilbestrol. It is a typical female breast histologically.

Fig. 9.—Section through glandular portion. Note typical glandular structure of normal female breast. This specimen is the only one I know of which demonstrates the changes produced by diethylstilbestrol in the male breast.

Three specimens of tissue studied after castration and after diethylstilbestrol or estradiol failed to give any evidence, from a microscopic standpoint, that could be recognized as the effect of treatment.

Figure 10 is a photomicrograph taken from Dr. Huggins which demonstrated the amount of acid phosphatase in the carcinomatous cells.

Chute has found that the 17 ketosteroids did not indicate the degree of satisfactory response to treatment.

Lett of London in 1905 reviewed 99 cases of inoperable carcinoma of the breast in women who had had oophorectomy at the suggestion of Beatson eight years previously. He failed to find more than 1 case which he considered permanently arrested in spite of the fact that as spectacular immediate response was witnessed as we are now witnessing in carcinoma of the prostate cases following castration.

Fig. 10.—Acid phosphatase in rich concentration in carcinomatous acini in neoplasm of prostate. The demonstration of the enzyme in this tissue was made by the method of Gomori.

SUMMARY

1. The basis on which the biochemical control of carcinoma of the prostate gland is based is the maintenance of a low androgen and acid phosphatase blood level.

2. So far this has been accomplished as long as twenty-two months by estradiol dipropionate by me and as long as two and one half years or more by castration by Huggins.

3. Chute advocates castration and large doses of diethylstilbestrol.

4. Testosterone elevates blood phosphatase (Huggins) and therefore should be administered with caution in men. The dose of estrogens to be administered should not be more than required to maintain control of the malignant process, which is a variable and individual quantity.

5. In view of the fact that microscopic study with ordinary staining methods has failed to demonstrate changes in the appearance of carcinoma cells, research in the field of biochemical staining methods similar to the Gomori method should be carried on.

6. In some instances the malignant process may be accelerated rather than controlled by diethylstilbestrol.

7. Should the prostatic cancer of patients who have been castrated cease to remain latent, as has occurred in carcinoma of the breast following bilateral oophorectomy, it would seem likely that additional control may be maintained by giving estradiol dipropionate or diethylstilbestrol and possibly other biochemical agents not yet utilized or available.

8. These relatively simple methods of biochemical control of prostatic cancer should have a wide field of application even though the control cannot be maintained indefinitely. The relief of pain alone more than justifies their use.

9. Further coordinated collaboration between the clinician and the research laboratories, I hope, will ultimately solve the problem of continued biochemical tissue control.

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ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. ALYEA AND HENDERSON, DR. CREVVY, DR. THOMPSON, DRS. NESBIT AND CUMMINGS, DR. GUTMAN AND DR. HERBST

DR. ARBOR D. MUNGER, Lincoln, Neb.: We are in a new era in the therapeusis of prostatic carcinoma. The theorem of possible relationship of some factor in the testicle, probably androgenic, to carcinoma of the prostate was promulgated by me eight years ago before the Southwestern Branch of the American Urological Association and culminated in the report before the American Urological Association a year ago. This clinical observation was paralleled by a report of Dr. Huggins, who embellished his clinical observation with careful scientific study of the relationship of serum phosphatase levels to carcinoma of the prostate, since which symposium there has been a rapid pursuit of this subject, establishing three schools; namely, the surgical castrationist or, as Dr. Herbst has so aptly entitled his paper, the biochemical therapeutist, and the irradiationist. As between surgical castration and castration by the estrogens or castration by irradiation, equally parallel end results are being obtained. In surgical castration there can be no question that one removes the carcinogenic factor with the testicle. By so doing the gates are closed to proper search by the biochemist for that unknown factor in our biochemical economy which might answer the problem of endocrine relationship to carcinoma. Truly the relief by castration is frequently phenomenal, and the estrogen approach is probably fundamentally the most scientific approach to this subject. Following the paper which I presented on direct planned irradiation of the testicles, I was rebuffed with statements that one cannot alter or destroy the interstitial cell of the testicle with x-rays. I am not in a position to present the histologic data accumulating on irradiated testicles but can say that, irrespective of whether or not the interstitial cells are thereby organically damaged, in 85 per cent of cases definite clinical improvement occurs parallel to the other types of castration; and, I believe, more definitely so than with an estrogen alone. Prior to one year ago no phosphatase levels were studied, since which time all cases have been so studied. We see all sorts of vagaries in phosphatase level behavior before, during and after irradiation. There is no constant pattern which one can establish except that when the levels are above the accepted normal a decline is of good prognostic import. We are on the threshold of an epoch making revolution in our concept of the causes and treatment of carcinoma of the prostate.

DR. H. C. BUMPUS JR., Pasadena, Calif.: With the increase in the incidence of the disease, a method for relieving much of the suffering it produces has been discovered. However, while urologists agree on the rapid relief of pain afforded there seems uncertainty as to the reason for the relief and disagreement as to the best method of obtaining it. Thus Dr. Kearns, in agreement with the recent reports of Dr. Dean from the Memorial Hospital, tells us that castration by upsetting the testicular-pituitary-adrenal relationship does not reduce the androgen content of the blood as satisfactorily as estrogen administration and refuses to do castrations. While Dr. Nesbit reports a case of transverse myelitis studied under equally careful circumstances in which no relief was obtained from diethylstilbestrol therapy over a three month period, during which time 1 mg. of the drug was given three times a day, yet following castration the patient was free from pain on the third day and at the end of a week was moving his toes. I believe that the proof of the greatest good done to the greatest number of patients with cancer of the prostate rests with the advocates of radical surgery, who as yet have not published lists of survivals in sufficient numbers to be convincing, if their records are compared with equal numbers of patients simply relieved of their obstructions. Now Dr. Thompson comes forward with a report that it seems to me makes the position of the advocates of radical surgery still more untenable. He shows that by transurethral resection in a series of patients sufficiently large to be convincing statistically, with a mortality of only 1 per cent, 14 per cent live more than five years. Now that estrogens and castration are available to aid in the treatment of these men, I predict that prolonged survivals will be so numerous as to make even the consideration of cure by radical surgery with the possibility of mortality and lifelong incontinence seem indeed fantastic. There can be no question about the prolongation of life following castration. When such outstanding investigators reach such diametrically opposite findings, it merely emphasizes how extensive is the field of biochemistry of the steroid hormones that still require investigation. As Herbst emphasizes, these steroid hormones probably affect more or less every cell in the body, and while we have learned an enormous amount concerning their behavior since the reports of Munger and Huggins, yet each case must be treated individually as to surgery or mediation. No rule of thumb is applicable to all. I am already on record as being absolutely opposed to the attempted cure of cancer of the prostate by radical surgery.

DR. JOHN H. MORRISSEY, New York: This group of papers is distinguished by the absence of one devoted to the advocacy of perineal prostatectomy as a complete cure of prostatic cancer. When competent urologists with opportunities for clinical research find themselves in disagreement not alone on unimportant details but on fundamental principles as well, I wonder if we are not going overboard a little too early in the day as to final judgment on the values of these procedure. In none of the papers has there been any mention of handling the various symptoms of the patient with prostatic cancer and for which he consults the urologist. Instead, their frequency and dysuria diminishes overnight, they begin at once to eat better and gain weight, and all considerations as to secondary infection and its treatment are no longer necessary. The patient merely has to improve or get worse. Adequate attention should be directed to the problem of bladder drainage either by resection or by

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cystotomy in all these cases. In a group of 18 cases in which operation was performed by me and my associates, we have had approximately 50 per cent unsatisfactory results. Curiously enough, these results show a definite relationship to the economic status of the patients. The worst results have all occurred in our municipal hospital cases in which after-care, endocrine therapy—and in New York City it is impossible to prescribe any glandular preparations, even thyroid, for any patient without permission of the superintendent—is accomplished with increasing difficulty. Nursing problems due to the military situation have complicated matters still further. Handling this phase of the problem by early cystotomy in such cases in which it may be necessary is one solution, and Dr. Thompson has indicated his ideas along similar lines. When these patients are deprived of a glandular activity that contributes largely to their general well-being, even though a neoplasm may at the same time be activated thereby, it is also important that continued attention be directed to the upper urinary tract and other foci of infection, caloric intake, vitamin therapy, and so on, all of which are likely to be below par rather than otherwise. Dr. Kearns is of the opinion that surgery is to be avoided and depends entirely on estradiol. I do not believe that all the surgical considerations of prostatic carcinoma, particularly cystotomy, from the standpoint of facilitating damage, can be thrown out of the window overnight.

DR. WALTER M. KEARNS, Milwaukee: Dr. Creevy does well to call attention to the importance of early diagnosis. I have been especially interested in glandular therapy for some time and I used estrogens before Huggins announced his excellent results with castration. I continued to administer estrogens and have persisted with them ever since. My series now comprises 42 patients, about 70 per cent of whom were benefited in varying degrees. All of the results were obtained through the use of estrogens alone. First I used diethylstilbestrol. Later ethinylestradiol was used by mouth. Still later the subcutaneous implantation of alpha-estradiol was employed. The last named is the preferred method of estrogenic administration. It is especially applicable for patients who are unable to tolerate either diethylstilbestrol or ethinylestradiol by mouth. It may well be combined with the oral administration of diethylstilbestrol or ethinylestradiol. The one route of administration may be employed to augment the other according to clinical indications. In the *Journal of Urology* (47:587 [May] 1942) I describe a new trocar which the Beckton-Dickinson Company perfected for me for implantation of pellets of alpha-estradiol under the skin. I brought back into use in my practice the blood sedimentation test as a guide in estimating the status of carcinomatous patients. Hemorrhage and various things will influence the rate. The test may be carried out in its simplicity every time the patient comes to one's office if so desired. If you take up the use of the phosphatase test, take particular care about the technic. One must have a good electric photometer, a constant temperature bath and an expert technician. It requires very active work. I have drawn blood and divided it among five different laboratories, including Dr. Huggins's laboratory. Before our technic was stanardized, diverse results with great variance between the different laboratories were obtained. Unless Gutman's technic, with one modification by Huggins, is followed very closely, the test is worthless. Pictures were taken at the onset of treatment. Six months later pronounced gain in weight was shown, with breast pigmentation and breast enlargement, which I consider a good criterion as to whether enough estrogen is being given. I start with 3 mg. a day of diethylstilbestrol or three tablets a day of estradiol and gradually diminish it and try to maintain a good effect on as small a dose as possible. Seven patients showed definite indications for surgery, but operation was postponed. Estrogens were administered from the very beginning, and the patients went on to improvement. With relief from symptoms, improvement in tests and shrinkage of the prostate gland they avoided surgery.

DR. CLYDE W. COLLINGS, New York: Most observers agree with Gershom Thompson that carcinoma of the prostate has been steadily developing in the patient's body for a considerable period before he seeks relief from obstructive symptoms. Like Bumpus, in the early days of transurethral surgery I advised resection of this type of lesion as a palliative procedure. After operation the patient is happy if he can void freely, without discomfort. Furthermore, he would like to be relieved, as many agree, by a minor procedure, which gives maximum comfort with a minimal risk. As Thompson and the majority of the urologists of the present day feel, radical perineal prostatectomy is justified for only a small percentage of patients. When one weighs in the balance the results from total extirpation of the prostate, knowing this to be a very major operation, performed on an elderly patient, with a possible complication of incontinence of urine, I believe that the scales tip in favor of transurethral surgery. Surely the latter method of relief is a long step forward in comparison to the treatment of old, when a permanent suprapubic tube was used. True, there have been many more incontinence clamps sold since the advent of transurethral surgery. We at Bellevue Hospital in the remote past, and at the Los Angeles General Hospital in the recent past, have not had incontinence of urine as a complication, provided, of course, the surgeon stopped short of the verumontanum. We all have had the experience of trying to gouge out obstructing prostatic carcinoma through a suprapubic opening. It is comparable to the mountain laboring and finally bringing forth a mouse. The surgeon pushes, tears and sweats, then brings forth a few nubbins. The late Dr. Edwin Beer, in a visit to the Urologic Clinic at New York University in the late 1920's, remarked "This cystoscopic picture, six months after transurethral surgery, shows a more efficient removal of the obstruction than we can accomplish by open prostatectomy." Our results parallel closely those obtained by Thompson. The mean age for our patients was 72 years. After operation they lived for an average of three and one-half years.

DR. VINCENT VERMOOTEN, New Haven, Conn.: My remarks are based on observations in 58 cases of carcinoma of the prostate in which Dr. Neuswanger of Waterbury, Conn., and I have done bilateral orchiectomies. Six years ago we did a total radical prostatectomy on an old man for carcinoma. Six months ago he returned with extensive skeletal and pulmonary metastases but with no local recurrence. Before orchiectomy he was extremely dyspneic and practically moribund. Now he is once more able to be up and about and can do a normal day's work. Like Dr. Alyea's patients, his lungs are also once more completely free from metastases. This makes me wonder whether a radical prostatectomy for even an early lesion is really worth while. In 2 other cases in this series total incontinence of urine followed a bilateral orchiectomy. Fortunately they are among the few in our series in which a transurethral resection was not done. In regard to Dr. Creevy's remarks as to unsatisfactory prostatic biopsy by Ferguson's aspiration technic, might I suggest that he try the Silverman needle as recommended by Dr. Pierson of Salem, Mass. Using this needle I have been able to remove cylinders of prostatic tissue 1.5 cm. long and 1 mm. in diameter. It is easy to remove the tissue from any nodule or area that one chooses, and microscopically one gets a very good picture of the tissue removed. I have a patient who, having prostatic symptoms, was given 25 mg. of testosterone three times a week. This, over a period of three weeks, cause pronounced aggravation of his prostatic symptoms, the most annoying of which was prolonged, painful priapism. After bilateral orchiectomy his symptoms rapidly subsided. Now the prostatic symptoms have almost entirely disappeared but a mild, transitory priapism still occurs when the bladder is very full. I feel that the danger of aggravating and stimulating the growth of a prostatic carcinoma, especially an occult lesion, must be borne in mind by those who choose to use testosterone for relieving prostatic symptoms.

DR. WILLIAM P. HERBST, Washington, D. C.: This study has not simplified the problem of the handling of prostatic carcinomas. Unfortunately at this period there is no way to predict what the results are going to be. It seems that from the standpoint of the end results of castration the contribution by Lett on his follow-up on the oophorectomy in inoperable carcinoma of the breast in women will prove to be about as good a preview blue print of what is going to happen to our castration cases as one can think of. I am afraid that we shall have to look for all of the assistance that we have now plus additional help that I hope we are going to find through further

studies in the biochemical field along the nature possibly of further blood chemistry investigations, further study of tissue staining methods, such as the method of Gomori, whereby certain changes in the chemical constituents of certain cells may be recognized.

DR. C. D. CREEVY, Minneapolis: The secretary of the section assigned this topic to me. I want to emphasize that I have advocated the radical operation only in the very earliest cases. During the period under discussion only ten radical perineal prostatectomies have been done at the University Hospital, and they were drawn from a group of some 500 carcinomas of the prostate. All of those who had any important obstruction to urination, except for the 10 included in the report, were treated by transurethral resection with or without irradiation. I should like to raise the question as to whether it is justifiable to attempt to cure any sort of cancer in any organ. I don't believe that the general surgeons, despite their low percentages of cures in carcinoma of the stomach or rectum, will concede that one ought to give up, and I still think that it is worth while to try for a cure in an appropriate case of early carcinoma of the prostate. I am inclined to hold to that point of view because we do not yet know for how long a period we can count on relief from castration or from the estrogens. If it is going to be just a flash in the pan, as was castration for inoperable carcinoma of the breast, then I don't think that the availability of the hormone preparations is a serious argument against radical perineal prostatectomy. We sometimes lose sight of the fact that an old man has as great a capacity for suffering as a younger man, and that he has a good deal less to lose by a radical operation of considerable magnitude than has a younger one.

HEREDITARY EPIDERMOLYSIS BULLOSA

CAPTAIN HARL D. MANSUR JR.
Medical Corps, Army of the United States

Epidermolysis bullosa [1] is probably not a single disease but rather a group of closely related pathologic states differing in genetic and clinical forms. It is an uncommon, peculiar disorder of the skin occurring early in life and characterized by the development of vesicles and bullae following minor or insignificant trauma. It occurs in all races and the two sexes are about equally subject to it, with the male having a very slightly higher incidence. Fox [1a] in 1879 first described the disease and Kolbner [1a] first used the name "epidermolysis bullosa" in 1886.

ETIOLOGY

The cause of the disease is not known. It probably is not a definite clinical entity. By some it is considered essentially an acantholysis at the junction of the epidermis and corium.

Referring to the hereditary form, Cockayne [1a] divides the cases into several genetic groups, and he states that there is probably a group of closely related conditions included under this term. He suggests the possible close relation of this disease to "keratosis follicularis with vesiculation" and "familial benign chronic pemphigus." Since the bullae occur only on the extremities, some have likened it to sailor's or farmer's skin—just plain "senile atrophy." Some authors believe that the bullae are the result of sudden and excessive serous exudation in a person with an irritability of the cutaneous vascular system; others insist that it is a trophic affair. Endocrine disturbances have been incriminated, and the allergist has likened the formation of the lesions to that of urticaria.

Cannon, Sanders and Rankin [2] made a complete bacteriologic study of the disease and found that the contents of the vesicles varied from clear fluid to frank pus and demonstrated Streptococcus hemolyticus of the group G strain present. They pointed out that this was not a contamination, since in 69 dermatologic cases picked at random from the Vanderbilt Clinic presenting twenty-eight different cutaneous diseases, no others showed a hemolytic streptococcus. The common organism consisted of Staphylococcus albus and Staphylococcus aureus, with an occasional Streptococcus viridans.

The histories of many cases indicate that consanguinity of parents may be a predisposing factor; also heredity plays a role in many instances. There are two forms—the simple, which is dominant, and the dystrophic, which may occur in both dominant and recessive forms.

The disease has been reported more frequently in Europe and is described under various names such as "acantholysis bullosa," "congenital bullous eruption," "congenital chronic pemphigus" and "pemphigus traumatique."

SYMPTOMS

In the simple or benign form the lesions occur only on the skin, and the bullae usually heal without scars. The disease may be observed in early infancy, though it most frequently occurs during the first three decades of life and rarely after 50.

In the dystrophic type, bullae and sometimes hemorrhagic lesions occur on both the skin and the mucous membrane. On healing, the sites of former lesions are usually marked by bluish atrophic scars or, in the case of involvement of the mucous membrane, by leukoplakia. Oral lesions are said to occur in approximately 16 per cent of the cases of dystrophic type. The loss of nails and hair and the presence of epidermal cysts are not infrequent. Hyperhidrosis is common in either type.

DIAGNOSIS

The diagnosis is made by the presence of the bullae resulting from mechanical irritation. Nikolsky's [3] sign, which is an absence of cohesion in the skin, wherein slight pressure easily removes the upper layers of the skin, is usually present. This sign is frequently present in the hereditary babe. Symptoms are exaggerated during the summer months; heat, hyperhidrosis and blisters are the common cycle of events. Some insist that leukopenia is the usual blood picture, while others have declared that leukocytosis is commonly present. The formation of bullae may be preceded by urticarial wheals. The blisters are monolocular and contain serum. After two to ten days they disappear without leaving an appreciable scar.

REPORT OF CASE

History.—H. B., a white soldier aged 23, seen for the first time Sept. 19, 1941 shortly after his arrival at Sheppard Field, reported at the routine morning sick call and listed his complaint, "blisters of the hands and feet." Such a complaint was

From the Station Hospital, Sheppard Field, Wichita Falls, Texas.
Read before the monthly staff conference, Station Hospital, Sheppard Field, Texas, March 4, 1942.
From the Dermatological Service, Station Hospital, Sheppard Field, Texas, Lieut. Col. Richard E. Elvina, Surgeon.
Released for publication by the War Department Publication Board, which assumes no responsibility, other than censorship, for the contents of this article.

1. Hundley, J. L., and Smith, D. C.: Epidermolysis Bullosa Acquisita, South. M. J. **34**: 364-372 (April) 1941.
1a. Cited by Hundley and Smith.[1]
2. Cannon, A. B.; Sanders, Murray, and Rankin, J. L.: Epidermolysis Bullosa: A Clinical and Bacteriologic Study, Arch. Dermat. & Syph. **42**: 884-893 (Nov.) 1940.
3. Davidson, L. T.: Hereditary Epidermolysis Bullosa, Am. J. Dis. Child. **59**: 371-378 (Feb.) 1940.

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not unusual from a recruit and nothing more than a superficial examination of the lesions was made and routine therapy given. He did relate at his first visit that all his folk had blisters which would not heal.

He stated that he had had these lesions as long as he could remember and that his mother told him that he had them in infancy. His past history was negative.

He made a return visit in one week, still with the same complaint, though his condition had become aggravated by his recruit training. Hyperhidrosis was strongly evident. We prescribed epsom salt soaks, hoping to cause some toughening of the epidermis. Later we tried salicylic acid; neither medication was of benefit. He returned to the dispensary every seven to ten days and improved sufficiently to start his technical training in the air mechanics school. He got along fairly well until it became necessary for him to walk about half a mile to the airport. His feet then became so painful that he had to stop school and be hospitalized.

His history further revealed that any pressure, even without friction, might cause these blisters to form. The lesions occur only on the dorsum and soles of the feet, and volar surfaces of the hands. A few have occurred on the legs where the supporter rubs. No lesions have existed elsewhere. In the formation of the lesions the skin becomes a deep red to scarlet, with a stinging, burning pain. This is followed by a clear, translucent, white plaque formation with a sensation of throb-

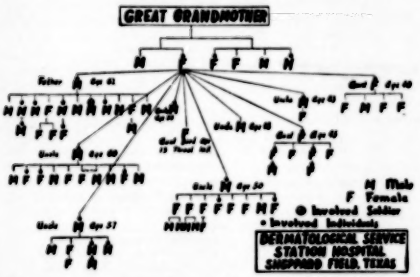

Fig. 1.—Graphic representation of the disease in five generations numbering 72 offspring.

bing in the center. The latter symptom remains until the full bullae have formed. The throbbing can be lessened by elevation of the extremity; pressure over the lesions makes the pulsations worse. The stinging, burning-like pain is severe enough to keep the patient awake if multiple lesions occur.

If the bullae are drained early only clear fluid is obtained; when they are not drained for five or six days a milky fluid is evident. If the bullae are not broken they will condense, dry, peel off and heal, leaving no visible scars and a grossly normal skin.

There is no known consanguinity of the parents. His brothers and sisters were normal except those who had blisters like his. His father and many of his uncles and cousins had the condition also. They labored as coal miners when their feet permitted them to work.

The soldier stated that he had a 6 weeks old niece who had the disease manifested by formation of small bullae where the infant's toes rubbed when kicking the covers.

Figure 1 and the accompanying table show the occurrence of the condition graphically.

Physical Examination.—The soldier was well developed and well nourished, was 67 inches (170 cm.) tall and weighed 140 pounds (63.5 Kg.). His blood pressure was 114 systolic and 65 diastolic and the Schneider index was +11. There were no physical abnormalities except for the lesions of the hands and feet. Some of the skin showed reddening; other parts showed clear blisters, while other areas showed dense, firm, fibrous-like bullae. Lesions were present in all stages.

Red blood cells numbered 4,675,000, white blood cells 6,950, with 70 per cent polymorphonuclear leukocytes. Urinalysis was negative. The sedimentation rate was 6 mm. in one hour; the Kahn reaction was negative; cultures of the fluid

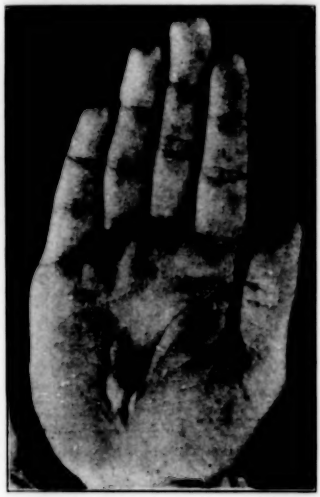

Fig. 2.—Early formation of bullae following the use of a broom for no longer than fifteen minutes.

Fig. 3.—Bullae about 3 days old (at base of middle and ring fingers).

from the bullae showed gram-negative diplococci; biopsy reports stated that the specimen was compatible with the diagnosis of epidermolysis bullosa. Microscopic studies have shown a deficiency of or defects in the elastic tissue of the upper derma, the tissue adjacent to the bullae being perfectly normal. The subpapillary layer, and to a lesser extent the deeper portion, shows a rather decided basophilic degeneration. A moderate

amount of perivascular round cell infiltration is evident. Elastic fibers are much decreased in the papillary corium, especially beneath the bullae.

COMMENT

A few cases of "acquired epidermolysis bullosa" [1] have been reported since 1915. McLeod [1a] reported that a retired army colonel at the age 50 suddenly had a

Fig. 4.—Formation of bullae on both heels and base of right small toe following about fifteen minutes of walking. Note old lesion of right small toe, as evidenced by scaling.

bullous response to the slightest pressure on his hands; another case reported was that of a Polish woman aged 55 who insisted that her lesions had been present only six months and that none of her family or relatives were similarly affected. Such cases have been described as "epidermolysis bullosa tarda," that is, hereditary with tardive or delayed manifestations.

It is in these cases that the concept of a formal and causal factor is brought out. The causal factor, trauma, is of course so universal that one would expect the lesions to develop early in life. On the other hand, events somewhat analogous to those in cancer may take place, supplying the formal factor, and there is what is termed the acquired form, which comes late in life. Senile degeneration of supporting structures in the skin doubtless predisposes to the acquired form by rendering the skin more vulnerable to trauma.

There is not found in the case here reported any abnormality of the blood picture, although others have insisted on the presence of leukopenia and leukocytosis.

Fig. 5.—Sections taken at the site of a lesion. Note the small macroscopic bullae.

The patient had a Schneider index of + 11, which would rule out cutaneous or vascular irritability as an etiologic factor.

TREATMENT

Most every salve, ointment, soap and powder of the dermatologist's armamentarium has been tried, with little or no good results. Cannon, Sanders and Rankin,[2] who proved the presence of hemolytic streptococcus in the lesions, used sulfanilamide with complete absence of the organism afterward and definite improvement of all symptoms. Our cultures did not show any growth of hemolytic streptococci but instead showed gram-negative diplococci, which evidently was a contamination. We used 5 per cent sulfathiazole ointment applied to the lesions but could see no improvement or lessening of the formation of bullae.

Beinhauer [4] of Pittsburgh treated 1 patient with a purified form of gonadotropic substance from the urine of pregnant women three times a week for a month. After the sixth injection the lesions cleared and ceased to reappear. Similar treatment of a mother and two sons with almost identical results was reported. We could not see the rationale of this therapy and therefore did not attempt to repeat it. No one else has reported the use of this principle in the treatment of this condition.

Kittredge [5] reported the treatment of epidermolysis bullosa acquisita of twenty years' duration with iron cacodylate, which was effective at least temporarily in his 1 case.

We tried a preparation of histaminase, 2 tablets three times a day and at bedtime, for ten days on the theory that the condition might be a cutaneous sensitivity. The oral histaminase would in turn produce histamine, which should cause desensitization. Beneficial results were not observed.

Occurrence of Hereditary Epidermolysis Bullosa

72 offspring:	
	30 members involved (17 males, 13 females)
	42 members not involved (20 males, 22 females)
First generation:	Great grandmother
Second generation:	6 offspring
	2 involved (2 females, 1 male)
	3 not involved (1 female, 2 males)
Third generation:	10 offspring
	8 involved (2 females, 6 males)
	2 not involved (1 female, 1 male)
Fourth generation:	42 offspring
	14 involved (7 females, 7 males)
	28 not involved (16 females, 12 males)
Fifth generation:	14 offspring
	5 involved (2 females, 3 males)
	9 not involved (4 females, 5 males)

Cold weather is of definite aid to these patients, and a soft leather, thick soled shoe is of great value. The only satisfactory treatment seems to be to take away the causal factor of trauma, which precipitates development of the bullae.

SUMMARY

The history of a 25 year old selectee having hereditary epidermolysis bullosa revealed that the family history showed thirty of seventy-two offspring in five generations had the disease. Seventeen of the members involved were males. Every one who had the condition was physically fit otherwise. The condition was proved to be hereditary, seems not to follow any mendelian ratio but shows dominant characteristics. The condition is evidently a congenital deficiency of the elastic tissue. No treatment that we have tried has given satisfactory results.

The soldier was given a certificate of disability for discharge, as being unfit for military duty.

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Clinical Notes, Suggestions and New Instruments

A CASE OF LEAD ARSENATE POISONING WITH RECOVERY

HERBERT H. KILGORE, M.D., AND PAUL S. RHOADS, M.D., CHICAGO

This is the report of a case of chronic lead arsenate poisoning occurring in a Michigan fruit farmer who had used this substance as a spray in orchards and vineyards over a period of thirty years. The paper is offered for publication because of the difficulty experienced in finding a clinical description of this combined chemical poisoning in standard textbooks on toxicology and medicine. The case reports of Stoddart, Riddell and Bulmer[1] and of Ayers[2] resemble ours in many respects. An excellent statistical report may be found in United States Public Health Service Bulletin number 267, published in 1941.[3]

In retrospect, the patient recalled that as long as five years before he had attacks of nausea and a quivering sensation of his muscles which kept him awake and restless at night but did not bother him while he was working. These symptoms were most noticeable the night following the use of the spray and decreased in intensity each night until the spray was again used, at which time there was an exacerbation of the symptoms. For two years he had had conjunctivitis, photophobia and blepharitis each time he used the spray. His family noticed that he tired more easily and was unable to do as much work as in former seasons.

Seven months prior to the time we saw him he noticed that his hands were cold and that numbness extended over the distal phalanges of his fingers. In one month's time the whole surface of his hands was numb and similar symptoms were starting in his feet. About this time he developed herpes zoster, and the eruption girdled his body in a 4 inch belt. He was confined to bed for three weeks. He complained that his feet were cold, and he received burns and blisters on his feet from the hot water bottles as a result of the lack of sensation. Vomiting became a prominent symptom and persisted for four weeks; this was accompanied by a considerable loss of weight. He noticed also that his epidermis scaled freely.

He was hospitalized at his local hospital four months after the onset of his illness, and at that time numbness had extended above his knees and up his arms, he had lost 40 pounds (18 Kg.) and he could no longer walk. The loss of strength became more acute, so that he could no longer stand. He developed numbness of the tongue and lips, dysarthria and dysphagia and could not raise his head from the pillow. Numbness had extended to his waist.

Five months after the onset of his illness he began to improve when he was given liver injections, because pernicious anemia was suspected, but this improvement did not continue and he entered Wesley Memorial Hospital two months later, which was seven months after he first sought medical aid.

On admission the patient complained of weakness, loss of appetite, vomiting, numbness and tingling of his extremities, irritation and redness of his eyes and photophobia. The objective findings were ataxia with pronounced foot drop, obvious loss of weight, sallow complexion, anemia, conjunctivitis, blepharitis with lacrimation, and cheilosis. All teeth were absent. Basophilic stippling of the red cells could not be demonstrated. The outstanding findings were those related to peripheral polyneuritis with considerable motor and sensory loss. There was generalized weakness of both upper extremities, more especially in the hands, with atrophy of the first dorsal interossei and the muscles of the thenar eminences. Flexion and extension of the feet and toes were feeble, and there was moderate weakness and atrophy of the muscles of the legs. The achilles, knee and wrist jerks were absent. The triceps was diminished on the left but present on the right. The biceps reflexes were intact, as were the abdominals and cremasterics. Vibration sense was lost up to and including the knees and wrists. Joint sense of the thumbs, big toes and ankles was absent. Sensory loss to light touch was complete over the hands and feet, and there was diminished sensation to pain over the same areas. Increased myotatic irritability was generalized.

Laboratory examination revealed 3,850,000 red blood cells, 3,500 leukocytes, and in the differential count 70 per cent of the cells were lymphocytes. The ascorbic acid level was 0.16, the icteric index, 13.7; there was no free hydrochloric acid in the gastric contents.

Samples of urine, hair and nails were sent to the Cook County Coroner's Laboratory for chemical analysis and Dr. McNally reported that in 0.797 Gm. of hair and nails there was 0.032 mg. of arsenic trioxide; normally none should be found. Fifteen hundred cc. of urine yielded 0.27 mg. of arsenic trioxide, and there was 0.12 mg. of lead per liter. One-hundreth mg. of arsenic trioxide and 0.089 mg. of lead are considered within the range of normal.

Lead and Arsenic Determination of Hair, Fingernails and Urine

1. Before treatment:
   0.797 Gm. of hair and fingernails yielded 0.032 mg. of arsenic trioxide, or 0.040 mg. per gram.
   After seven weeks of treatment:
   3.071 Gm. of hair and fingernails yielded 0.06 mg. of arsenic trioxide, or 0.0195 mg. per gram.
   Normally, no arsenic trioxide should be found in 1.0 Gm. of hair and nails.
2. Before treatment:
   1,500 cc. of urine yielded 0.27 mg. of arsenic trioxide, or 0.18 mg. per liter.
   Normal urine yield is 0.01 mg. per liter.
   1,500 cc. of urine yielded 0.18 mg. of lead per liter, or 0.12 mg. per liter.
   Normal urine yields 0.089 mg. of lead per liter.
   No determinations on the urine were made after treatment.

Treatment consisted of triweekly intravenous injections of 1 Gm. of sodium thiosulfate and intensive vitamin therapy, especially with reference to the vitamin B group. This included brewers' yeast 1 drachm (4 Gm.) with each meal, an ampule of a vitamin B preparation daily and 100 mg. of thiamine hydrochloride on alternate days by intramuscular injection. Fifty mg. of ascorbic acid and a capsule containing vitamin A, thiamine hydrochloride, riboflavin, ascorbic acid and vitamin D were given three times daily by mouth. He received 15 drops of diluted hydrochloric acid before each meal and a high vitamin diet, always in excess of 3,000 calories daily. Solution of liver extract in 1 cc. doses twice a week intramuscularly and 3 grains (0.2 Gm.) of a hematinic containing desiccated ferrous sulfate three times a day by mouth were given until the blood count became normal. The patient also received physical therapy in the form of heat and massage.

On this program there was a definite improvement in the neurologic findings, a gain of 25 pounds (11 Kg.) and a return to normal in the blood picture, the red cell count being 5,120,000 at the time of discharge from the hospital. A second chemical analysis was done seven weeks after treatment was started. Three and seventy-one thousandths Gm. of hair and nails yielded 0.06 mg. of arsenic trioxide. It will be noticed that in this determination there was approximately four times the amount of hair and nails and only twice as much arsenic was found. The patient was released from the hospital to continue his convalescence at home.

Three weeks after returning to his home he wrote that he was walking about his farm as he desired and still gaining weight and strength.

Because of the improvement seen in this patient, the prognosis for a good recovery seems favorable.

From the Department of Medicine, Northwestern University Medical School, and Wesley Memorial Hospital.

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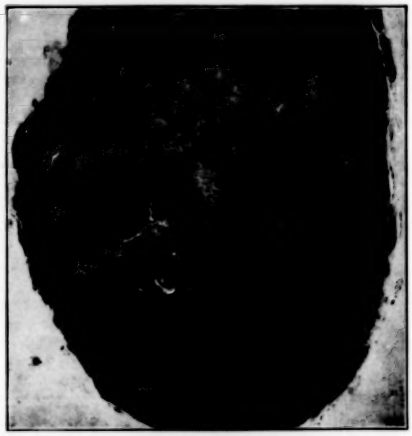
3. Neal, P. A., and others: A Study of the Effect of Lead Arsenate Exposure on Orchardists and Consumers of Sprayed Fruit, No. 267, Federal Security Agency, Public Health Service, Division of Industrial Hygiene, National Institute of Health, 1941.

FOLLICULAR LYMPHOBLASTOMA

WILLIAM E. JAHSMAN, M.D., DETROIT

Though probably first described by Becker [1] in 1901, it is only in more recent years that scattered reports of a new pathologic and clinical entity have appeared in the medical literature. Various titles have been given to this entity, among which are "giant follicular lymphadenopathy," "giant lymph follicle hyperplasia of the lymph nodes and spleen" and "follicular lymphoblastoma." Brill, Baehr and Rosenthal [2] were the first to call the disease to the attention of the medical profession in this country in 1925. They first thought that the condition was benign, but a follow-up of their cases revealed that most cases terminated with the clinical histologic picture of lymphosarcoma and hence they changed their original name "giant lymph follicle hyperplasia of the lymph nodes and spleen" to "malignant lymph follicle hyperplasia," and later, with Klemperer,[3] to "follicular lymphoblastoma." These authors outlined the chief characteristics of the disease as follows:



Section through axillary lymph gland of white woman aged 53 with follicular lymphoblastoma. The architecture of the gland is fairly well preserved. The follicles are considerably larger than usual. The germinal centers are pale and contain many mitotic figures. The sinusoidal spaces are quite well preserved but with some invasion by lymphocytes. Hematoxylin and eosin stain.

1. Lymphadenopathy due to hyperplasia of the germinal centers of the lymph follicles.
2. Splenomegaly frequent (60 per cent) and due chiefly to enormous enlargement of the malpighian bodies.
3. Absence of abnormal cells in the blood.
4. Absence of anemia and cachexia.
5. Tendency toward development of serous effusions in pleural and peritoneal cavities.
6. Absence of involvement of tonsils and the lymphatic apparatus of the gastrointestinal tract.
7. Tendency to lymphatic infiltration in the lacrimal gland resulting in unilateral exophthalmos.
8. Multicentric origin throughout the body in the lymph follicle, whereas lymphosarcoma arises monocentrically and spreads by lymphatic extension.

These authors stated that the entire process was a variety of lymphosarcoma and possibly might form a connecting link between systemic hyperplasia of the lymphatic tissue and lymphosarcomatosis.

Symmers [4] reported interesting terminations of some of the 25 cases he reviewed; namely that:

1. In 7 cases polymorphous cell sarcoma had developed.
2. In 7 others the condition was associated with Hodgkin's disease.
3. In 4 others the condition was associated with lymphatic leukemia.

In 1940 Baggenstoss and Heck [5] reviewed 59 cases of the disease reported in the literature and 13 additional cases from the Mayo Clinic. The previous 59 cases included those of Foix and Roemmele,[6] Kettle,[7] deJong,[8] Ikeda,[9] Terplan,[10] Ross,[11] McNee,[12] Cabot,[13] Ewing and Fein [14] and Symmers.[4] Their observations were similar to those of Baehr, Rosenthal and Klemperer [3] except that in some cases there was involvement of tonsils or retroperitoneal and mesenteric lymph glands. They also stressed the radiosensitivity of the lesions, although no permanent cures had been obtained.

To this total of 72 cases reported, Combes and Bluefarb [15] recently added 15 presenting cutaneous manifestations but no splenomegaly. In the series there were 14 males and 1 female ranging in age from 15 years to 80 years—average age 55.6 years. Of the series of 72 patients previously reviewed, 47 were males and 25 females. The average age was 39.3 years, the range being 2 to 77 years. Only 9 patients were less than 30 years of age.

The prognosis for the disease is favorable because of the usually good response to roentgen therapy. But unfortunately after repeated irradiations the response is less spectacular, and finally this therapy is of little help. The average duration of life after the disease appears is four and one-half years. But the condition may be mild, with exacerbations and remissions. Two patients are known to have been living seventeen years after symptoms first appeared.

To date, then, there are reported a total of 87 cases, so that the disease is still relatively uncommon. Because of this, with the possibility that it may be overlooked and the fact that it is an interesting condition, I wish to add 1 more case, the first to be reported from the Henry Ford Hospital.

REPORT OF CASE

L. B., a white woman aged 53, American, was seen in October 1938 because of frequent attacks of infection of the upper respiratory tract with cough, purulent nasal discharge and thick mucoid sputum. The positive manifestations then were allergic rhinitis, nasal polyp, cloudy antrums and chronic asthmatic bronchitis. There were no enlarged lymph glands. The spleen was not palpable. Response to local nasal treatment, autogenous vaccine from sputum and simple medications was good through the winters of 1938-1939 and 1939-1940.

In April 1940 she was not quite as well generally. There was considerable itching of the skin. She attributed soreness

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13. Cabot, R. C.: New England J. Med. **213**: 67 (July 11) 1935.
14. Ewing, H. M., and Fein, M. J.: Follicular Lymphoblastoma, J. Lab. & Clin. Med. **22**: 807 (April) 1937.
15. Combes, F. C., and Bluefarb, S. M.: Giant Follicular Lymphadenopathy, Arch. Dermat. & Syph. **44**: 409 (Sept.) 1941.

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in the groins to coughing. But there were slightly enlarged glands in the inguinal regions, in the right axilla and in both cervical areas and a single larger gland in the left axilla. The spleen was 11 cm. below the left costal margin in the midclavicular line. It was firm but not tender. There were no abnormalities of the chest. A blood count showed hemoglobin content 14 Gm., red blood cells 4,850,000, white blood cells 10,900 with 43 per cent polymorphonuclear leukocytes, 8 per cent eosinophils, 38 per cent small lymphocytes, 10 per cent large lymphocytes and 1 per cent monocytes.

By July 1940 itching of the skin had increased and there was more coughing. The appetite was poor with a consequent loss of 14 pounds (6.4 Kg.). One month later her cough was more distressing and nonproductive and there was percussion evidence of widened mediastinal dulness in the first and second intercostal areas. This was thought to be due to enlarged mediastinal glands. Roentgenograms of the chest showed evidence of parenchymatous infiltration occupying the extreme left base and moderate accentuation of both hilar areas. The interpretation by the roentgenologist was possible mediastinal lymphoblastoma with lymphocytic infiltration of the left base. Follicular lymphoblastoma was now suspected and was confirmed by biopsy of an axillary node. The pathologic report was as follows:

Section through the lymph node revealed the architecture to be fairly well preserved. The capsule was comparatively thin but infiltrated in some areas with lymphocytes. The follicles were well preserved and appeared to be considerably larger than usual. Germinal centers were pale, and large numbers of mitotic figures were found within the germinal centers. The surrounding, more adult lymphocytes showed very few mitotic figures. The sinusoidal spaces were quite well preserved and there was little reticular hyperplasia. There was some invasion of the sinusoidal spaces by the lymphocytes, however. This lesion should be regarded as potentially malignant. The diagnosis was follicular lymphoblastoma.

A section from the lymph gland is shown.

There was good response to roentgen therapy to the chest, enlarged lymph glands and spleen. By September neither the spleen nor the lymph glands were palpable. The patient had gained 25 pounds (11 Kg.), had no complaints and had resumed her usual household duties.

In April 1941, two enlarged cervical glands were again present. These caused no symptoms but were treated with roentgen rays and again promptly disappeared. Hemoglobin of the blood at this time was 14.0 Gm., and red blood cells numbered 4,650,000.

Enlargement of the spleen recurred in October 1941 and on November 24 measured 8 cm. below the left costal margin. It was tender to palpation. There was increased itching of the skin. Small doses of roentgen rays over the spleen again caused complete disappearance of the enlargement by December 15.

On Feb. 18, 1942 the hemoglobin content of the blood was 13.3 Gm. and the red blood cells numbered 4,270,000. The patient was symptom free except for some itching of the skin and, for the first time, slight constipation. On June 15 the edge of the spleen was again just palpable at the costal margin and slightly tender. No enlarged lymph glands could be felt.

SUMMARY

The present case of follicular lymphoblastoma is the eighty-eighth to be reported in the literature. The patient is clinically quite well two years after symptoms began. She had no actual cutaneous lesions like those described by Combes and Bluefarb [15] but did have annoying itching, as often occurs in Hodgkin's disease. She also had slight eosinophilia, as did 9 of Combes and Bluefarb's 15 patients. But more outstanding in this case were the characteristics of the disease emphasized in the 72 earliest cases reported; namely, insidious onset with regional or general lymphadenopathy, splenomegaly, the absence of anemia or abnormal cells in the blood, and the great radiosensitivity of the lesions.

Henry Ford Hospital.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

AT THE REQUEST OF CENSORSHIP THE STATEMENTS ON TESTS AND STANDARDS, ACTIONS, USES AND DOSAGE WHICH NORMALLY ACCOMPANY THE STATEMENT ON A PRODUCT NEWLY ACCEPTED FOR INCLUSION IN NEW AND NONOFFICIAL REMEDIES HAS BEEN WITHHELD FOR SULFAGUANIDINE UNTIL A FUTURE DATE. THEY WILL APPEAR IN THE COUNCIL PUBLICATION NEW AND NONOFFICIAL REMEDIES.

AUSTIN E. SMITH, M.D., Acting Secretary.

DEXTROSE (See New and Nonofficial Remedies, 1942, p. 418).

The following dosage forms have been accepted:

CONTINENTAL HOSPITAL LABORATORIES, INC., CLEVELAND.

Dextrose 5% W/V in Distilled Water: 500 cc. and 1,000 cc. bottles. Each 100 cc. contains 5 Gm. of dextrose.

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Dextrose 20% W/V in Distilled Water: 500 cc. and 1,000 cc. bottles. Each 100 cc. contains 20 Gm. of dextrose.

Dextrose 2½% W/V in Isotonic Solution of Sodium Chloride: 500 cc. and 1,000 cc. bottles. Each 100 cc. contains 2.5 Gm. of dextrose and 0.9 Gm. of sodium chloride-U. S. P.

Dextrose 5% W/V in Isotonic Solution of Sodium Chloride: 500 cc. and 1,000 cc. bottles. Each 100 cc. contains 5 Gm. of dextrose and 0.9 Gm. of sodium chloride-U. S. P.

Dextrose 10% W/V in Isotonic Solution of Sodium Chloride: 500 cc. and 1,000 cc. bottles. Each 100 cc. contains 10 Gm. of dextrose and 0.9 Gm. of sodium chloride-U. S. P.

Dextrose 5% W/V in Isotonic Solution of Three Chlorides: 500 cc. and 1,000 cc. bottles. Each 100 cc. contains 5 Gm. of dextrose, 0.86 Gm. of sodium chloride-U. S. P., 0.03 Gm. of potassium chloride-N. F. and 0.033 Gm. of calcium chloride-U. S. P.

SODIUM CITRATE (See New and Nonofficial Remedies, 1942, p. 427).

The following dosage form has been accepted:

CONTINENTAL HOSPITAL LABORATORIES, INC., CLEVELAND.

Sodium Citrate 2½% W/V in Isotonic Solution of Sodium Chloride: 70 cc. in a 1 liter vacuum flask. A sterile 2.5 per cent solution of sodium citrate in isotonic solution of sodium chloride contained in a vacuum flask designed to permit aspiration of blood from the donor and subsequent administration of citrated whole blood to the recipient by gravity flow.

SULFAGUANIDINE.—Sulfanilylguanidine monohydrate. —*p*-Aminobenzenesulfonylguanidine monohydrate. — $C_7H_{10}O_2N_4S.H_2O$ (M. W. 232.24).

E. R. SQUIBB & SONS, NEW YORK.

Sulfaguanidine *(Powder)*: 3.5 Gram envelope; 4 ounce and 1 pound bottles.

Tablets Sulfaguanidine: 0.5 Gm.

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Lactate Ringer's Solution: 500 cc. and 1,000 cc. bottles.

ISOTONIC SOLUTION OF SODIUM CHLORIDE (See New and Nonofficial Remedies, 1942, p. 425).

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ISOTONIC SOLUTION OF THREE CHLORIDES (See New and Nonofficial Remedies, 1942, p. 427).

The following dosage form has been accepted:

CONTINENTAL HOSPITAL LABORATORIES, INC., CLEVELAND.

Isotonic Solution of Three Chlorides: 500 cc. and 1,000 cc. bottles. Each 100 cc. contains 0.86 Gm. of sodium chloride-U. S. P., 0.03 Gm. of potassium chloride-N. F. and 0.033 Gm. of calcium chloride-U. S. P.

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SATURDAY, DECEMBER 5, 1942

FIFTH ANNUAL CONGRESS ON INDUSTRIAL HEALTH

The problems associated with the maintenance of industrial health continue to attract increasingly the attention of physicians, employers, workers and governmental agencies. Indeed, the hearings before the Pepper committee on education and labor served to focus the public eye on the situation. The program for the fifth Annual Congress on Industrial Health, on page 1145 of the Organization Section of this issue of The Journal, has been designed to illustrate how industrial health services can be extended and improved.

The demand for industrial health service has increased at a time when the facilities and personnel of medicine cannot assign the numbers of physicians and technicians necessary for ideal coverage. Intensified organization for the certification and training of physicians essential to industry becomes necessary; these plans will be discussed during the congress. The growing influence of labor in the industrial health program will be represented by a description of activities currently under way by employee-management production drive committees now organized in more than sixteen hundred plants at the request of the War Production Board.

A symposium on Infections in Industry will be conducted jointly with the Council on Pharmacy and Chemistry to include not only those of definite occupational origin but also others causing serious loss of time in industry, notably those affecting the upper respiratory system.

Another significant development in industrial practice is the changing nature of the work force; men are being replaced by women, older men, young workers and the handicapped. Each presents a new and different group of health problems.

Another session of the congress has been assigned to industrial medicine and the emergency. Here recent experience in functioning with less well trained help, the possibility of using technicians and aides to a greater extent as replacements for more skilled people, more effective use of medical records as guideposts to needed preventive medicine and hygiene, and closer association between industrial medical facilities and those being set up for emergency medical care under the Office of Civilian Defense will be elucidated.

Innovations during this congress will be symposiums on Medical Relations in Workmen's Compensation, jointly presented with the Bureau of Legal Medicine and Legislation, and on Recent Developments in Rehabilitation, presented jointly with the Council on Physical Therapy.

On the last day a round table on Nutrition of Industrial Workers will be held in company with the Council on Foods and Nutrition and interested personnel from the National Research Council and the United States Public Health Service. Directly following this symposium a conference on industrial health to which the public will be invited will be held under the joint auspices of committees of the Chicago Medical Society and the Illinois Manufacturers' Association. Many other state and local organizations will collaborate.

An exhibit is planned which will demonstrate the industrial health services now available through agencies in organized medicine, public health and a few independent agencies. According to present plans, about thirty exhibits will be shown.

Once again this program reveals the desirability of focusing the attention of almost every phase of medical activity on the health problems of industry.

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RECENT INVESTIGATIONS OF MARIHUANA

The practice of smoking marihuana has been credited with precipitating criminal acts, releasing inhibitions, lowering morals and leading eventually to mental deterioration. Hemp has been known as the source of fiber which goes into the making of rope and clothing and for its oil. The intoxicant of which it is the source has been called in different countries charas, ganja, hashish and other names. The Congress in 1934 passed the "marihuana bill," which provides regulations and penalties for use and distribution of the product as strict as those imposed for the use and sale of morphine.

The chemical, pharmacologic and clinical characteristics of the intoxicating principle of hemp have been the subject of a combined study by the University of Illinois, Cornell Medical College and Welfare Island Hospital. Results of these far reaching investigations, as reported by Professor Adams,[1] are of scientific and practical interest. The investigators at the University of Illinois isolated a substance which they term "cannabidiol." At the same time, by developing a new procedure, they have isolated from this same oil Cahn's

1. Adams, Roger: Marihuana (Harvey Lecture), Bull. New York Acad. Med. 18:705 (Nov.) 1942.

cannabinol. Cannabidiol, like cannabinol, proved to be physiologically inactive. However, the study of its structure and its reactions led to the determination of the structure of cannabinol and to the formation of tetrahydrocannabinols, products of high marihuana potency which are probably active principles in the red oil of hemp. Next, attention was directed to attempts to synthesize compounds of similar activity. A satisfactory procedure was devised for obtaining an isomer of the natural tetrahydrocannabinol. Loewe of the Department of Pharmacology of the Cornell Medical College applied his principle of "bioassay by approximation" to the ataxia test of Fraenkel and thus established a reliable quantitative test for the potency of the substance.

Clinical studies of the effects of marihuana were conducted at the Welfare Island Hospital under the direction of Dr. Samuel Allentuck. A careful study was made on a group of 77 persons ranging in age from 21 to 45 years and from borderline to superior in intelligence, all voluntary recruits from one prison population. The maximum tolerated dose for each person was determined. At the same time, approximately the threshold at which psychotic changes first appeared was established. Tetrahydrocannabinol and the synthetic compounds dissolved in oil were administered by mouth in gelatin capsules and in some cases by intramuscular injection. Other clinical tests were made which involved intoxication from marihuana cigarets. The observed physical effects one or more of which occur in each person are (*a*) elevation of the pulse rate, (*b*) elevation of the blood pressure, (*c*) injection of the conjunctival blood vessels, (*d*) dilatation of the pupils and sluggish reaction to light and in accommodation, (*e*) circumoral tremors, tremulousness of the protruded tongue and the extremities, (*f*) dryness of the oral and pharyngeal membranes, (*g*) increased frequency, with decreased amplitude of thoracic respiratory movements, (*h*) ataxia and (*i*) hyperreflexia. The observed psychiatric effects are (*a*) apprehension and anxiety, (*b*) euphoria, (*c*) loquaciousness, (*d*) lowering of inhibitions, (*e*) hunger and thirst, (*f*) a feeling of being "high," (*g*) uncontrollable bursts of laughter or giggles and (*h*) drowsiness, languor, lassitude and a pleasant feeling of fatigue. Tolerance may be produced by repeated administration of subtoxic doses over a prolonged period of time. Marihuana is unlike opium derivatives in that it does not give rise to a biologic dependence accompanied by withdrawal symptoms. Neither does it establish a strong craving as exists in tobacco smoking or alcoholic indulgence. It is no more of an aphrodisiac than alcohol. A follow-up of the subjects has failed to establish the existence of any craving for the product.

The Welfare Island study of every phase of action of marihuana and the synthetic drugs did not reveal evidence of any deleterious effects. It was felt, therefore, that some therapeutic use might be made of some of their properties. The drug, for example, could be used for persons in various stages of mental depression because of its euphoric effect. The invariable effect of these drugs in stimulating the appetite suggests that they might be applicable in psychoneuroses in which a lack of desire for food exists. The euphoria produced by marihuana is in many ways comparable to that achieved by the use of actual opium derivatives. This suggested the possibility of use in the treatment of addicts to opiate derivatives to eliminate or ameliorate the withdrawal symptoms commonly experienced during so-called cures. The preliminary clinical experiments by Dr. Allentuck with a group of drug addicts yielded encouraging results. A more exhaustive study of the possibilities of these drugs as a means of relieving withdrawal symptoms in narcotic addicts would seem to be justified.

COMPETITIVE BIDDING FOR INTERNS

Progress in medical education has been so rapid and so complex that one or more years of internship is uniformly considered essential to complete the preparation of the graduate in medicine for medical practice. The internships available for the continued education of medical graduates vary greatly in their quality. This, of course, makes necessary the comprehensive study of educational services in the hospitals of this country and the establishment of a list of approved internships by the Council on Medical Education and Hospitals of the American Medical Association. In the past fifteen years the number of available internships has advanced far beyond the annual needs of the graduating classes. This excess has partly been compensated for by the desire of some graduates to take more than one internship before beginning medical practice and by increase in the period of intern training in some hospitals.

As a war measure internship in hospitals of the United States does not now exceed one year, since medical school graduates are allowed only twelve months after graduation in which to complete their training before military service. Furthermore the number of residents has necessarily been reduced to a minimum—by at least one half. Finally, hospital staffs have also been greatly curtailed by entrance of physicians in the military services.

These developments have increased the demands for interns by hospitals and in some instances competitive bidding has extended to unwarranted salary levels. Frequently such salaries or honorariums are offered by hospitals whose educational program in itself appears to be inadequate to attract a sufficient number of interns. Competition for interns with the proffering of extraordinary salaries is not a new occurrence but has been

intensified by the present emergency. Heretofore medical school graduates have recognized the internship as an integral part of their educational program. They have tended to seek internship for the educational opportunities rather than for the financial returns. Fortunately the great majority of interns have always been interested primarily in educational merits and have looked askance at internships offering salaries beyond the ordinary allowance for incidental expenses.

Competitive bidding can be reduced to some extent if all hospitals will cooperate in maintaining a uniform and equitable distribution of interns in relation to clinical and educational needs. A hospital should not appoint an excessive number of interns to compensate for the loss of residents and other staff physicians. As a general rule the ratio of house officers to patients should not exceed one intern to six hundred annual admissions. Abuse of the use of interns by self-seeking administrators of hospitals might attract the attention of military authorities and lead indeed to an attack on the policy of deferment which now makes interns available.

Current Comment

COUNTY MEDICAL SOCIETIES URGED TO MEET REGULARLY

Significant in the address of Col. Fred Rankin, President of the American Medical Association, before the Annual Conference of Secretaries and Editors of State Medical Societies, was his recommendation for continuation of the meetings of smaller medical groups during the war. Already many national organizations of physicians and also some state societies have announced the abandonment of their annual sessions during 1943. The difficulties of transportation and the considerable demand on the time of the physician necessitated by travel to a distant point made such action necessary. However, such reasons do not prevail in relationship to the meetings of the county medical societies. The county medical societies are the organizations most concerned with the planning and support of the work of many agencies concerned in the war effort. To the county medical society come the requests of the Red Cross, the county and state health departments, the welfare agencies, the groups charged with the organized treatment of venereal disease, the care of the crippled and the tuberculous, and of other agencies which undertake important responsibilities during the emergency. To the county medical society also comes the need for recommendations to the Procurement and Assignment Service for Physicians, Dentists and Veterinarians, the organization of civilian defense, the blood donor program, and sometimes recommendations on the rationing of tires, gasoline, fuel and food. Moreover, physicians require during this time, perhaps more than at any other, the mental stimulation of interchange of medical information. Now is the time more than ever when local medical societies should be most active and supplement as far as possible the work of state and national associations.

NEW AND NONOFFICIAL REMEDIES, 1942

Since 1906 the Council on Pharmacy and Chemistry has issued annual revisions of New and Nonofficial Remedies. Each annual volume represents a milestone in the progress of the Council's work. The 1942 volume has just appeared. Those familiar with previous editions will note that a radical rearrangement of the contents and notable revision of the style have been made. This change should make the contents more accessible. Heretofore the classification of products has been basically that of chemical relationship; the new arrangement is based on therapeutic use, chemical classification being introduced by means of subheadings. In addition, the typographic style has been changed to give greater prominence to the products of individual manufacturers. Valuable features previously in use have not been sacrificed. The book still fulfils its function of establishing chemical standards for new and nonofficial preparations which the Council has found to be useful or to give adequate promise of usefulness in the treatment or prevention of disease. Its function as a guide to the most recent advances in therapeutics has been greatly enhanced. The Council has performed well its annual task of keeping the text abreast of the progress of medicine. The authoritative and compendious section of the sulfonamide derivatives is an example. So also is the chapter on vitamins and vitamin preparations for prophylactic and therapeutic use. Equally important though less extensive revisions have been made in such sections as those on aluminum compounds, dextrose, gonadotropic substances, liver and stomach preparations, ovaries, parathyroid, pituitary and testes. Among the newly accepted drugs are Acetyl-Beta-Methylocholine and the proprietary brand Mecholyl Chloride, proposed for use by iontophoresis, orally and subcutaneously as a parasympathetic stimulant; Adrenal Cortex Extract for parenteral use in the treatment of Addison's disease or of adrenal insufficiency of other types as well as prophylactically in surgical procedures involving the adrenal cortex; Aluminum Hydroxide Gel with the proprietary brand Creamalin for oral use as an adjunct in the treatment of peptic (gastric and duodenal) ulcer; Normal Human Serum, and Normal Human Plasma. Others worthy of mention are Cyclopropane, another general anesthetic, now included in the U. S. P.; Amylcaine Hydrochloride, another proprietary local anesthetic, and Pernoston Sodium, the sodium salt of the previously accepted proprietary barbital derivative Pernoston. This volume should be available to all physicians, pharmacists and others interested professionally or commercially in drug therapy. One cannot commend too highly the unselfish and untiring efforts of the Council on Pharmacy and Chemistry in the preparation of this invaluable contribution to rational therapeutics.

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MEDICINE AND THE WAR

In this section of The Journal each week will appear official notices by the Committee on War Participation of the American Medical Association, announcements by the Surgeon Generals of the Army, Navy and Public Health Service, and other governmental agencies dealing with medicine and the war and such other information and announcements as will be useful to the medical profession.

SURGERY IN RUSSIA

ACADEMICIAN BURDENKO AND HIS SCHOOL

DR. ALEXANDER LEPUKALN
Moscow

NOTE.—The following paper was radioed to THE JOURNAL *from Moscow. The article is printed here primarily because of the unusual circumstances associated with it.*—ED.

This article contains a concise review of work done by Academician Burdenko and his school. Its purpose is to inform our American friends about problems pursued by one of the leading schools of Russian surgeons.

Academician Burdenko was born in 1878 in a family of poor employees. His grandfather was said to have been a serf. In 1906 he graduated from Derpt University. Four years later, in 1910, he received his professorship, being only 32 years old, one of the youngest professors at that time. This was the chair formerly occupied by the conspicuous Russian surgeon Nikolai Ivanovich Pirogov. Appointment of a 32 year old professor to one of the most ancient universities was an unusual event which could have been explained only by the extraordinary ability of the candidate.

The first steps of this beginning in surgery coincided with the period of rapid development of this branch of medicine. It will, however, be noted that clinical thought of that time was confined to anatomy and pathologic anatomy: it dwelt mainly on morphology. Hardly any one of the surgeons was at that time interested in introducing into scientific clinical work achievements of experimental medicine and physiology. Nikolai Burdenko was one of the pioneers among clinical surgeons who endeavored to introduce into clinical work the elements of experimental medicine such as physiology, bacteriology and later on, with progress of chemobiologic sciences, of these disciplines as well. This is one of his greatest merits.

Methods of physiologic experimentation used by Burdenko were studied in the laboratory of his great compatriot Ivan Petrovich Pavlov as well as abroad. His interest in the nervous system led him to the study of anatomy and histology of this system. His first publications deal with physiology of the liver and pancreas. In his thesis "Contributions to Consequences of Ligating Venae Portae" (1909) he was one of the first students to experiment on exclusion of the portal circulation. At about the same time his publication appeared on plastics of radicles of the spinal cord. The purpose of this work was to form two collateral bundles of neighboring pairs of radicles at the level of a defect of the spinal cord. One of the first publications on heart surgery also belongs to this author.

In 1914-1917 his academic activity was interrupted by the first world war, in which he participated as consultant surgeon at the front. There he worked in dressing detachments in field hospitals and carried on great organizational work. Along with the problem of abdominal surgery and of cerebral wounds he paid much attention to anaerobic infection. By that time he had also developed his method of treatment of gas poisoning at the front. At the end of the war Burdenko occupied the position of Chief Army Medical Inspector of the army. It may be mentioned in passing that Burdenko is a man of great personal courage and was awarded the soldiers' George Cross during the Russian Japanese War. To this he has since added three Soviet orders.

After the war of 1914-1918 surgery was occupied with postwar traumas, which led to problems of trophics. In this way the neurosurgical trend of study became separated as an independent branch of medicine. So-called late complications of lesions of the central and peripheral nervous system have also contributed to the development of neurosurgery as an independent branch of surgery.

Active part in the solution of these problems is played by Burdenko and his school. Numerous papers have been published both in this country and abroad by Burdenko and his associates on conductivity of pain, and on sensitivity on surgery of tumors of the third and fourth ventricles of the brain.

In revising current concepts on the pathogenesis of stomach ulcers, surgical thought comes again to the problem of trophics and the significance of subcortical centers and of other components of the nervous system in the initiation of ulcerative process in the gastrointestinal tract. Experimental clinical work on this subject by Burdenko and his associates have been cited in particular by the American neurosurgeon Harvey Cushing. The doctrine of trophics has raised the problem of oncology of the central nervous system, which has also contributed to the development of neurosurgery. In the Soviet Union Burdenko is the acknowledged leader of this domain of surgery.

In 1929 he organized his clinic and two years later the Neurosurgical Institute was founded on this basis, well equipped with all modern technic. For the first time cooperative research in neurosurgical problems was adopted. In addition to clinical laboratories, others were organized, including biochemical, pathoanatomic and other laboratories headed by prominent specialists not only in surgery and neuropathology but also in histology, physiology, biochemistry and ophthalmology. Owing to this method of research, Burdenko was in a position to make important contributions to neurosurgery.

Besides the Neurosurgical Institute, Burdenko is also head of the chair of surgery at the Moscow Medical Institute. Here also the same principle of cooperative research, so characteristic of his school, is being followed. He cooperates with bacteriologists, biochemists and physiologists in his studies on disinfection (bio-

logic, chemical and mechanical) of infected wounds. Valuable suggestions as to the treatment of these wounds have resulted from his cooperation. Problems of blood transfusion have also been taken up by this school, in particular of immunized blood.

Burdenko's clinic was the first among Moscow clinics to take up in 1932 problems relating to active surgery and resection of the lungs. Here also studies in endocrinologic surgery and in hemophilia as well as in other branches of surgery have been inaugurated.

Mention has already been made of the problems directly concerning military field surgery as developed by the school of Burdenko (problems of blood transfusion, disinfection of wounds, traumatology). In this respect particular attention is due to studies in traumatic shock. Years devoted to this problem have clarified and improved current theories of the etiopathogenesis of traumatic shock. One of the latest studies of Burdenko in this direction deals with Shardinger's enzyme and the nature of the final acceptor of molecular oxygen brought by the blood.

We do not dwell here on results obtained by Burdenko and his school in developing the theoretical basis of military field surgery. It will only be mentioned that within recent times much work has been done on this problem, the results of which may be found in articles and instructions which are successfully applied for treatment of wounded defenders of our fatherland.

Such is a brief outline of the work done by Academician Burdenko. This trend of surgery may be termed biologic. This implies methodologic presumptions of experimental clinical character. Biologic approach to morbid process in the organism as a whole inevitably leads to cooperative methods of work.

I did not mention here the activity of Academician Burdenko as an organizer and outstanding social worker. It need only be recalled that he is a member of the Supreme Council of the Union of Socialist Soviet Republics, chief surgeon of the Red Army, president of the Association of Surgeons, one of the editors of the surgical journals and president of the Scientific Medical Council of the Commissariat of Public Health and of numerous other committees.

Surgical congresses are the supreme form of organization of surgical thought in our country. Over a number of years Burdenko has been elected president of these congresses. The Scientific Medical Council, headed by Burdenko, controls scientific research work in this country and charges personnel of many surgical clinics and hospitals of Moscow at other cities with a number of scientific, practical problems.

PROCUREMENT AND ASSIGNMENT SERVICE FOR PHYSICIANS, DENTISTS AND VETERINARIANS

APPEALS PROCEDURE

The directing board of the Procurement and Assignment Service has issued the following appeals procedure for individual physicians, dentists and veterinarians, and for employers thereof, to all state chairmen:

The responsibility for the initial decision as to whether an individual physician, dentist or veterinarian is to be considered essential in his present situation or available for service elsewhere rests with the respective state committees. The local, county or district committees may serve in an advisory capacity to the state committee, but the authority to make decisions rests with the state committees.

If an individual physician, dentist or veterinarian or the institution employing him does not agree with the decision of the state chairman as to his availability for service elsewhere, the individual or his employing agency may request a reconsideration of the decision by the state committee. If the original opinion is upheld by this committee, appeal may be made to the corps area chairman and his committee. In this event the corps area chairman should request all information available from both the state committee and the person himself, and the corps area committee should appraise the situation and render a written decision to both the state chairman and the individual concerned.

If the decision of the state committee is still sustained by the corps area committee, the individual concerned or his employer has the further privilege of submitting his case to the central office of the Procurement and Assignment Service. When this is done the central office will assemble all pertinent information from the individual, his employer and the state and corps area committees concerned and present this for action to the directing board or to a special committee of the board in case a decision is necessary before the next board meeting. In such circumstances this committee shall report the case and its decision to the board at its next meeting.

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ARMY

CITED FOR GALLANTRY IN ACTION

Dr. Charles A. Baumhauer, Whistler, Ala., has been awarded by General MacArthur's headquarters a silver star for gallantry in action. According to the *Journal of the Medical Association of the State of Alabama*, Dr. Baumhauer exposed himself to enemy fire to assist wounded comrades during an air raid on Port Moresby on April 26, and the citation read "He did a great deal to relieve the pain and suffering of wounded men and helped establish a feeling of safety and security among the personnel, who had been through a harrowing experience." Dr. Baumhauer graduated from Tulane University School of Medicine in 1938.

AIR AMBULANCE SERVICE

Speaking on the radio from Cairo, Egypt, Denis Johnstone gave an account of the air ferry ambulance service of the Royal Air Force, which he said was saving many lives. This is a shuttle service of transport and ambulance planes, which during the recent campaign flew army casualties and enemy wounded from the forward areas back to the base hospitals. They have been especially useful in cases requiring blood transfusion. These air craft carrying the wounded are unarmed and unescorted and fly by day and by night, sometimes landing along a flare path at the end of their journey like bombers coming in from a night operation. It thus becomes possible for the seriously wounded to be transported hundreds of miles within a short time to adequate medical aid and hospital facilities.

ARMY PROMOTIONS

Lieut. Cols. S. C. Schwartz in command of the Station Hospital at Fort Thomas, Indiana, and George E. Armstrong, assistant commandant of the Medical Replacement Training Center Officer Candidate School, Camp Barkeley, Texas, have been promoted to colonel, and Major J. H. Carson and Capts. L. E. Burnelle and Rosendo Forteza, all on duty at Fort Thomas, Indiana, have been promoted to lieutenant colonel and major, respectively.

LIEUTENANT COMMANDER BLACK RECEIVES WELLCOME AWARD

Lieut. Comdr. Arthur P. Black, U. S. Naval Medical Corps (R), has received the Sir Henry Wellcome award of 1942 of the Association of Military Surgeons of the United States. The ten manuscripts submitted in the competition were on the subject Measures of Preventive Medicine Recommended by the Federal Medical Services to Insure the Maximum Improvement of the Selectee of 1961 over Him of 1941. Commander Black graduated from Johns Hopkins University School of Medicine in 1926 and was the third successive naval officer to win this annual award. The second award in the competition went to Lieut. Col. Henry Pleasants Jr., West Chester, Pa., U. S. Medical Reserve Corps. Lieutenant Commander Black is at present on duty at the Naval Air Station at Kingsville, Texas.

CLASS OF AVIATION PHYSIOLOGISTS

Another course of instruction for aviation physiologists began on November 9 at the School of Aviation Medicine, Randolph Field, Texas. Among others, the following doctors of medicine were members of the class:

1st Lieut. William H. Bachrach
1st Lieut. Joseph H. Hafkenschiel Jr.
Capt. Richard M. Leick
1st Lieut. William S. Maurer
Capt. Ward A. Peterson
1st Lieut. Irwin C. Winter

NAVY

ADMIRAL McINTIRE RENOMINATED SURGEON GENERAL

The President of the United States has renominated Rear Admiral Ross T. McIntire to be chief of the Bureau of Medicine and Surgery of the U. S. Navy. Admiral McIntire graduated from the Willamette University Medical Department, Salem, Oregon, in 1912, and has been a member of the Navy Medical Corps since 1917. He was first appointed Surgeon General of the Navy in 1938. According to the *Army and Navy Journal*, Admiral McIntire declared a few days ago, in a radio address in answer to criticism and newspaper items concerning the large number of doctors being ordered to military service, "When the Marines go into battle, our people go with them, so when I hear statements made that perhaps we have too many doctors to care for our fighting men I want you to know that this is not so. We are only adequately furnishing medical personnel so that the lives of the wounded men who may be your sons can be saved. I can assure you that there will be no waste of medical personnel."

PORTRAITS PRESENTED TO MEDICAL CENTERS

Portraits in oil were recently presented to the Surgeon General of the Navy for placing in the new Naval Medical Center at Bethesda, Md. The portraits were of William P. C. Barton, first chief of the Bureau of Medicine and Surgery of the Navy (1786-1856), Jonathan M. Foltz, chief of the Bureau of Medicine and Surgery (1810-1877), and Elisha Kent Kane, medical officer of the U. S. Navy (1820-1857). The portraits were presented by Mr. J. J. Brodbeck of the Ciba Pharmaceutical Products, Inc., and were accepted by Rear Admiral Charles M. Oman, commanding officer of the Naval Medical Center.

On the same day the Ciba Pharmaceutical Products, Inc., presented paintings to the Surgeon General of the Army at the Army Medical Library of Charles S. Tripler, brigadier general, Army Medical Corps (1806-1866), for whom the Army General Hospital at Honolulu is named, Jonathan Letterman, surgeon major, Army Medical Corps (1824-1872), for whom the Army General Hospital at San Francisco is named, and Bernard J. D. Irwin, brigadier general of the Army Medical Corps (1830-1917). The speech of acceptance for the army was made by Col. Harold W. Jones, librarian of the Army Medical Library.

WOMEN RESERVISTS AT NAVAL MEDICAL CENTER

The Naval Medical Center at Bethesda, Md., has taken the first Women's Reserve Officers into its staff. Lieut. (j. g.) Cornelia Gaskill is enrolled in an indoctrination course at the Naval Medical Center preliminary to duty as a medical officer with the Women's Reserve. Lieutenant Gaskill, who is the wife of an army doctor, gave up a busy practice in New York to accept a commission. She was graduated from Cornell University School of Medicine in 1937. Lieuts. (j. g.) Kathryn Hyde and Dorothy Oborne have reported for duty on completion of their thirty day training course at U. S. Naval Training School, Smith College; the former is a medical illustrator and the latter is a medical technician. Miss Hyde graduated from the University of California and took postgraduate study at Johns Hopkins University. Miss Oborne, a graduate of Pembroke College at Brown University, was a medical technician with a group of New York physicians before entering the Women's Reserve.

CIVILIAN DEFENSE

OFFICE OF CIVILIAN DEFENSE USES NEW METHOD OF ADMINISTERING MORPHINE

Because of the critical shortage of tin, the U. S. Office of Civilian Defense has been unable to procure syrettes for administration of morphine by physicians of Emergency Medical Service. To meet this serious difficulty, a new device using glass and plastic has been developed.

This device consists of a small, sealed glass ampule containing ¼ or ½ grain (0.016 to 0.032 Gm.) of morphine in solution. The solution is under sufficient pressure to eject the entire contents. A piece of transparent plastic tubing encloses the neck of the ampule and connects it to the hub of the needle. The shaft of the needle is enclosed in a small glass tube, to which is attached a stylet. At the hub of the needle within the plastic tube is a small filter.

Following is the method of using the ampule:

1. The body of the ampule is grasped in the right hand.

2. The glass tube protecting the needle is withdrawn by a twisting and pulling movement of the fingers of the left hand.

3. With the needle pointing down and the body of the ampule vertical to the skin, the needle is inserted by jabbing it under the skin.

4. When the needle is in place, and with the ampule vertical to the skin, pressure is exerted with the thumb and two fingers on the plastic tubing to break the neck of the ampule. It is important that the ampule be held vertical to the skin, in order that morphine may not be lost by improper technic.

5. The pressure within the ampule ejects the contents. The filter prevents glass splinters from clogging the needle.

6. When the ampule is empty, the needle is withdrawn and the whole device is discarded.

This ampule will be supplied in connection with the medical supplies and equipment that will be distributed to communities for equipping mobile medical teams and casualty stations organized in the Emergency Medical Service. The actual distribution of the morphine supply will be handled by the U. S. Commissioner of Narcotics and will be primarily under his control at all times. The amount of the drug being obtained is limited, so that initial distribution can be made only to those cities in the target areas that are entitled to receive other Office of Civilian Defense supplies and equipment.

MISCELLANEOUS

HOW TO PROLONG LIFE OF RUBBER ARTICLES

In a statement to doctors, nurses and hospitals, William M. Jeffers, rubber director, called attention to the need of conserving rubber articles other than tires. Mr. Jeffers said that all rubber articles should be as carefully preserved as tires and repaired where feasible. This is especially true of surgeons' gloves, which require very high percentages of crude rubber.

The Conservation Division of the War Production Board has suggested the following general principles for the preservation of rubber gloves, hot water bottles, ice bags, rubber sheeting and rubber tubing:

1. Clean and dry rubber goods thoroughly before storage.
2. Store in a cool, dark and dry room, away from sources of heat.
3. Lay rubber articles flat when storing, allowing them to assume their natural position. Rubber under a permanent strain loses its life and will set up a deformation which may cause it to crack.
4. Handle rubber goods carefully and avoid puncturing with sharp instruments or finger nails.
5. Wash with soap and water or alcohol as soon as possible after contact with oils, greases and solvents.

The greatest enemies to the long life of rubber are sunlight, heat, oils, greases and solvents. The ultraviolet rays of the sun penetrate the surface of rubber, causing it to oxidize. Vegetable oils, cottonseed oil, mineral oil, greases, turpentine, gasoline, chloroform and naphtha cause swelling and softening, making rubber more susceptible to mechanical damage.

SURGEONS' RUBBER GLOVES

Surgeons' rubber gloves are usually discarded because of tears, cuts or punctures which occur before the rubber has deteriorated. All possible precautions should therefore be taken to reduce the possibility of such damage. Insist that gloves be put on and removed carefully, and caution all wearers to avoid cutting or puncturing the glove. When drawing on or removing a rubber glove, care should be taken that the finger nails of the person holding the gloves do not tear into the rubber. Surgeons who literally "rip" gloves off their hands and throw them aside should be made to realize that this is unwisely wasteful during the emergency. Gloves should be rinsed in cold water after use and before removing them.

Proper sterilization procedures will extend the life of rubber gloves. Several hospitals have reduced the period of exposure in the sterilizer from thirty minutes to fifteen minutes.

Because of the high quality rubber, it is necessary that rubber gloves be repaired where possible and their life extended to a maximum. Cuts, tears and punctures can be repaired by applying a patch of thin sheet rubber with rubber cement. The cuffs of discarded gloves or thin rubber sheeting can be used for this purpose.

MOLDED RUBBER GOODS

The water used in a water bottle should in no case have a temperature higher than 140 F. Boiling water ages the rubber. A water bottle should be filled to two-thirds capacity with hot water. The bottle should then be squeezed to expel the air in the bottle and the stopper inserted. There should be no air in the bottle when in use. After use, these items should be thoroughly drained and dried. If an antiseptic or other solution has been used, they should first be rinsed out with clean warm water. Before storing they should be inflated so that the sides will not stick together.

SURGICAL TUBING

Clean and rinse rectal tubes thoroughly and then boil for two minutes. Stomach tubes should be rinsed and thoroughly cleaned and then soaked in a 5 per cent solution of cresol for one hour. Clean tubing as soon as possible after use, and when storing allow them to assume their natural position. There should be no sharp bends or kinks.

A NONINJURIOUS SUBSTITUTE FOR GLYCERIN IN LUBRICATING JELLY

The shortage of glycerin and gums has made it difficult for doctors in hospitals to obtain adequate supplies for lubricating gloves, catheters and other surgical rubber products. The Canadian Hospital Council requested the Ontario College of Pharmacy to develop, if possible, a product which would not require either glycerin or gum. Such a product was developed by D. E. MacKenzie, assistant professor of pharmacy in the Ontario College of Pharmacy. The method of preparing material was described in the July 1942 *Canadian Medical Association Journal*, which stated that the following formula would meet these requirements:

Starch	7 ounces 135 grains
Distilled water	1 gallon
Sodium lactate (60 per cent)	90 fluidounces
Mercuric oxycyanide	280 grains

Dissolve the mercuric oxycyanide in part of the distilled water, using the remainder of the water to form a smooth paste with the starch. Combine these two portions with the sodium lactate and heat in a steam kettle or some other device capable of supplying a temperature of approximately 100 C. The heating, with moderate agitation, is continued until a translucent jelly is formed, at which point the product can be at once transferred to suitable containers.

STERILIZATION

The product is best sterilized after it has been placed in containers and, following latest approved procedure, can be successfully rendered sterile by autoclaving at a steam pressure of 10 pounds (115 C. or 240 F.) for a period of thirty minutes.

The War Production Board states that by taking proper care of rubber goods it is often possible to extend their useful life by 50 per cent.

THE NATIONAL ROSTER OF SCIENTIFIC AND SPECIALIZED PERSONNEL

Senior and graduate students of chemistry, physics, engineering and other specialized fields were urged, November 24, by the National Roster of Scientific and Specialized Personnel to register with the roster, writing to Dr. Leonard Carmichael, Washington, D. C., the director, mentioning the fields in which they have training or knowledge.

Registration with the National Roster is not to be considered application for employment, although many of those registered have received offers and 140,000 men and women have thus been referred to prospective employers, particularly to aid in war production and research. Many industries needing technicians consult the local USES offices. The National Roster is constantly used to advise selective service boards about the importance of work being done by civilian technicians of draft age.

The National Roster, which is a part of the War Manpower Commission, has listed and punch-card-indexed more than a half million names in more than sixty specialized occupations, covering everything from genetics to housing and radio broadcasting. The names filed include the most famous scientists in the country as well as the most recent college graduates in the various scientific courses.

USE OF ÉMIGRÉ PHYSICIANS

In a release from the National Committee for Resettlement of Foreign Physicians, 139 Centre Street, New York City, Dr. Tracy J. Putnam, vice chairman of the committee, states that the standard set by the Procurement and Assignment Service (THE JOURNAL, October 31, p. 703) clarifies the way for greater use of this group of physicians at a time when the nation is short of trained medical men. The public now will appreciate, he said, that although émigré doctors are eager to serve with the military medical services they cannot do so and that the full use of their skill and training must be in other areas where emergencies exist and where they can serve on the basis of temporary placement for the duration of the war. The National Committee for Resettlement of Foreign Physicians has already placed fifteen hundred refugee physicians on hospital jobs throughout the country, where they serve as interns, resident physicians and in laboratories. The maximum use of the six thousand émigré doctors in the United States, however, is yet to be realized.

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ORGANIZATION SECTION

OFFICIAL NOTES

ANNUAL CONFERENCE OF SECRETARIES AND EDITORS OF CONSTITUENT STATE MEDICAL ASSOCIATIONS

HELD AT AMERICAN MEDICAL ASSOCIATION BUILDING, CHICAGO, NOV. 20-21, 1942,
DR. HARRISON H. SHOULDERS, NASHVILLE, TENN., PRESIDING

MEDICAL MEETINGS AND MEDICAL EDUCATION

COLONEL FRED W. RANKIN

Medical Corps, United States Army; President of the American Medical Association; Chief Consulting Surgeon to the U. S. Army

The example of the American Medical Association in postponing its 1943 meeting has been followed by most of the larger medical and surgical societies in this country. Increasing transportation burdens make it especially difficult for a sizable audience to attend any medical meeting to which representatives of all sections of our country are eligible. In addition, the problem of formulating a satisfactory and progressive program is becoming increasingly complex, owing to limitation in the choice of essayists imposed by the fact that so many of the leaders of the profession are already serving with the colors and therefore are unavailable. That medical meetings as a part of medical education are essential, and that they should not be completely abandoned, is an obvious fact. On the other hand, a reduction in number of meetings and a modification of programs seem a necessity until the present emergency has passed. In consequence, it has seemed to me advisable again to urge consideration of multiple small medical meetings, preferably under the sponsorship of parent organizations, to be held in various sections of the country at properly spaced intervals throughout the year. The already organized postgraduate assemblies held in numerous cities under the auspices of the local medical organizations constitute nuclei for a plan. Such assemblies could, I believe, be expanded with little difficulty into meetings which would embrace even wider territorial reaches than they have in the past. These thoughts seem to be at least worth presenting to you; they represent practically identical ideas which I advanced to the House of Delegates of the American Medical Association at its last meeting in Atlantic City. The Board of Trustees has appointed a committee to investigate the possibilities of the parent organization fostering sectional meetings in the near future, and I feel that it would be most advantageous to have the reactions of the respective state units to such a proposal.

One other thought comes to me and that is the idea of having joint state meetings participated in by two or three, or even more, contiguous states. These meetings have been tried occasionally. I have attended some which were a success from every point of view, and it seems entirely possible that this plan might be an acceptable departure from the usual routine of the state medical meeting. With transportation facilities being constantly allocated for troop movements, with more and more men being drawn into the services, and with those men who are serving industry and the civilian population becoming more busily engaged and finding it a greater hardship to get away for any purpose, it is obvious that the curtailment and consolidation of medical meetings is a necessity and something which should be definitely planned for. I believe it would be a grave error to abandon all medical meetings, but the exigencies of an emergency compel modification of our accustomed methods and schedules.

MEDICAL EDUCATION

Medical educational standards must unquestionably be maintained at their present level as long as is compatible with emergency conditions. The production of doctors in present day quantities is an absolute must on the list of essentials. We can ill afford to give up, save only under the compulsion of necessity, our present teaching schedules. That they are being modified and that teachers under 45 years of age are being replaced in all medical schools is a tribute to the profession's patriotism and understanding. I believe that the vast majority of medical school faculties have been eminently fair in the release of many of their younger men and in arranging for their replacement by over-age or physically disqualified individuals. I would counsel tolerance and patience in this process, for a hurried readjustment must lead to confusion and ultimately will be detrimental to the over-all program. It should also be remembered that schools differ as to individuals, and that an institution situated in a small city without a large available professional reserve to draw on for replacement of clinical teachers is more handicapped in making its adjustments than is a school situated in a large urban center. The acceleration of the curriculum has placed an even greater strain on faculties of medicine than formerly, and this should be recognized by the agencies procuring doctors for the armed forces. Moreover, many medical schools are at this time engaged in research problems directly associated with the war program, and such contributions should be interfered with as little as is consonant with a complete effort.

PROCUREMENT OF PHYSICIANS

The profession has responded to the call for medical men in the armed forces in a manner which has, up to the present time, filled the quotas satisfactorily. That this has not been done without some confusion and many irritations is true. I would emphasize two facts in this connection: One is that the primary purpose of Procurement and Assignment was to secure men for the armed forces. Second, that phase has now passed, and, irrespective of differences of opinion, criticisms, and occasional unpleasant recriminations which have arisen in various parts of the country, the armed forces, by a combination of effort on the part of Procurement and Assignment and the Army and Navy themselves, are up to the present time adequately supplied with men. Nevertheless it should not be taken for granted that more men will not be needed in the future. They definitely will be needed by both the Army and the Navy in 1943, regardless of what modifications are made in the tables of organization for medical units. You have only to read the press reports of the Secretary of War to understand that an army of several more millions will require many thousand additional physicians, and young physicians especially. In consequence, it seems to me not unfair to ask why efforts are not being redoubled at the present time in the five most populous states of the Union where physicians, particularly under the age of 45, seem still reluctant to accept commissions in the Medical Corps, Army of the United States.

The greatest future task facing Procurement and Assignment is unquestionably the safeguarding of the civilian health and the procuring of men for industrial plants. On the other hand, let it not be overlooked that the armed forces are the first line of defense, that they must be provided for medically first. This, I am convinced, is the wish of every individual citizen. I can conceive of no circumstance under which a democratic nation would deny to its armed forces adequate medical care, even though it should be at the expense of other elements of the population. May I not also be permitted to recall to you the fact that the present system under which doctors are being recruited for the Army and reserved for civilian and industrial practice is a voluntary one. This fact has frequently been lost sight of, I think, and there has been not inconsiderable dogmatic discussion of reallocation of physicians and drafting of the medical profession. I think that even a cursory scrutiny of the law will disclose that there is no provision for application of the Selective Service Act to any one group of individuals to serve in any capacity, save as fighting men. Doctors cannot be drafted for professional work, until all elements of the citizenry are placed under a draft regulation, I believe that the medical profession should vigorously oppose any measure which would single out physi-

cians for draft action. The patriotism of the medical profession is unparalleled by that of any other group of individuals. We have borne, without reluctance and with patient tolerance, threats and recriminations by individuals, committees and commissions and yet have continued to respond to the nation's call. Do we not deserve more commendation and cooperation, and less castigation and malicious innuendo?

THE RESERVE MEDICAL OFFICER IN THE WARTIME SETUP OF THE NAVY MEDICAL CORPS

REAR ADMIRAL ROSS T. MCINTIRE
Medical Corps, United States Navy; the Surgeon General of the Navy

During the year that has passed many years have passed when measured by the advancement of surgical methods in caring for war casualties. Pearl Harbor will always be a watchword and a symbol for the Navy and for the American people. Pearl Harbor marked an advent of modern war medicine. On that date, December 7, 1941, the Army and the Navy lost several thousand men. These men had no opportunity to protect themselves from the enemy who made the dastardly attack, but they have served their country as well as any of the men who fought in the Coral Sea, at Midway and in the Solomon Islands. These men sacrificed their lives in a sudden and shocking fashion, but by so doing they brought sanity to a nation that was fast asleep and had very little unity in it.

At Pearl Harbor hundreds of men were horribly burned and we learned quickly that our newer methods were good and we also learned, as quickly, the mistakes that we made. Consequently, thousands of lives will be saved to the nation and to their families because of the knowledge gained in caring for the wounded at Pearl Harbor.

The Medical Department of the Navy has been planning for eventualities since September 1939, for to us it was inevitable that war would some day come on us. So in our planning we were determined to be ready to meet any emergency that might be brought on us in any part of the world in which the Navy might possibly be.

The Medical Department of the Navy has a rather peculiar duty to perform, for it serves the Navy and the Marine Corps. When we speak of the Navy it seems all of its branches, for we have our ships at sea, our aviation, our submarines and all of the hospitals that are scattered throughout the continental limits and in our far flung islands. This means that the Medical Department must be prepared to serve on board ship, on hospital ships, with the Marine Forces ashore and with our aviation wherever it may go.

To meet these demands the Medical Department of the Navy had visualized the great expansion that would surely come and found it was correct. Knowing this, to build up carefully a competent Reserve Corps, it organized dozens of specialists' units to work out screening methods which would keep out the mentally unfit. To do this it was necessary to secure the aid and assistance of civilian specialists. It is a matter of record today that the specialists and general practitioners alike have answered the call and are functioning smoothly with the regular organization of the Medical Department. It is interesting to note that there are three times the number of medical officers on duty that there were in 1917-1918.

In the last war the problem we had to face was one of serving our ships at sea and caring for the Marine Corps needs. Aviation, being in its infancy, required very little in the way of medical attention. Today the reverse is true. Aviation, with its ever growing personnel and the emphasis which is being placed on it as the offensive weapon of this war, is calling for more and more qualified medical officers. During the years between the wars very little was done in the way of sane research that would improve flying conditions for our pilots. In fact, research in general was carried on in a rather superficial fashion. Not so with our enemies. Germany, as we well know, for at least five years before her attack on Poland had been carrying on intensive research in the field of aviation as well as in other methods of warfare. Consequently her planes and pilots are able to fly at consistently greater heights than ours. However, in our crowded months we have made considerable progress, but because we waited so long our months must be crowded, and the coming months must also be, if we are to attain the necessary goal whereby our pilots will be made safe in flying at heights of 40,000 feet and more.

There are times, when we look at the field of research and view its enormous scope, that it gives us a feeling of utter helplessness. So we in the Navy are shutting our eyes to many of the problems that we would like to see solved and are opening them to certain definite problems that must be solved if we are to gain a real advantage over the enemy.

Let me enumerate some of the things that must be solved: First and foremost, shock. To you this is an old story, but it is one that should challenge your attention, for it is a problem that has not been solved and, until it is, the lives of our men who are on the front line of combat will be exposed to a greater percentage of hazard. We think we know the cause but we must find means of preventing it. So we are hard at work finding newer and better means of combating and preventing this very deadly enemy. However, with the use of our blood substitutes we have a valuable means of helping to combat shock.

The second, and very nearly as deadly to fighting men, is the specter of fatigue. It is insidious in its approach and slowly numbs the senses of the fighting men. Here is another definite challenge to you of the medical profession. What is fatigue? Until that can be answered, the goal of how to prevent it cannot be reached.

It has been our boast that the specialists in naval medicine approach their problems from the preventive side. We do, and it is with great embarrassment that we must admit that there are certain things that prevent us from always carrying out this policy. Therefore we will strive even harder to find the answers to these two bugbears, but we shall need your help.

When this war began there were less than a thousand regular medical officers in the Navy Medical Corps. Today we have added between six and seven thousand reserve officers to that number. It is with peculiar satisfaction that I am able to tell you today that the great majority of these men are functioning as smoothly as though they had been in the Navy for years. It is the present policy of the Medical Department of the Navy to order as many of these officers as possible to our naval hospitals for a period of time following their induction into the service. If this cannot be done they are ordered to our large training stations, where they receive a short period of indoctrination in the ways of Navy life.

The medical specialists' units that have been organized during the past few years have proved of great value in that they are now operating in our hospitals within the continental limits, in our mobile hospitals that are established in the islands of the oceans, and on our hospital ships. The officers of captain and commander ranks in the regular corps of the Navy are being used in executive capacity, in the main, and the professional work is being carried on by our reserve officers. We find that this works in a highly satisfactory manner.

Up to this time we have used regular medical officers on board ship, for it is difficult for a civilian to enter such a highly organized life and be able to function as a part of it. We are now finding, however, that it is possible to place reserve officers on board our ships who have had several months' duty in our large shore hospitals. I am also able to tell you that we have been, and are, making every effort to see that a medical officer who is especially qualified—in surgery, urology, x-ray—is given an opportunity to carry on that work if he is on shore duty. If, however, he is on sea duty he then must again assume the role of a doctor of medicine. It is a great satisfaction to me to be able to say here today that the average specialist who has found himself thrown in a field where it was necessary to practice medicine in all its phases has delivered the goods in a grand fashion.

I want to tell you a story about one of our outstanding specialists, in a certain line, who entered the Medical Reserve Corps of the Navy some two years ago. He could not believe that it was possible for the Navy to carry on its work in the field unless it was done so by specialists. I assured him that we were very glad to have him in our service, that he would fill a very needed spot and that he would be used for the time being in his specialty. I advised him to spend some of his time in the hospital to which he was going in seeing what the surgeon was doing, to refresh his mind in x-ray diagnoses of other conditions than his specialty, to be able to look in an ear and to examine an eyeground. He looked at me in a rather doubtful fashion and said "I do not believe I can do it." The other day I happened to see this man and he was having a fine time, for in addition to being of great help by reason of his years of experience he was now having an opportunity to see sick and injured men again, with any number of conditions that he would never have met had he stayed in civil life.

It is my hope that we shall never see medicine in this country subsidized by the government. I do believe, however, that the government can, and should, help in any way it can to reduce hospital costs. By providing means to reduce the fees that come from all kinds of laboratories and specialized examinations would be a legitimate means of government aid. The doctor must give thought to, and how, his part can be played

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in this, and here the matter of specialization will need to be given serious consideration.

It is again my hope that in the very near future the troublesome problem that is now before us, as to the proper spread of medical personnel throughout this country, will be adjusted. The Medical Department of the Navy has no expectation of asking for any more doctors than it actually needs to carry on its part in this war. It expects to play its part, regardless of the numbers that may be available, and should it be necessary to go below the standards we believe we need we shall do this rather than cause a hardship on the industrial output of this nation by reason of epidemics that might be due to lack of proper medical supervision. It is my thought, however, that when this whole field is properly worked over, and authority is given to handle personnel, we shall not come to any such end.

We have today forty-one naval hospitals ranging from bed capacities of 300 up to 5,000. The smallest hospital we have today has a patient load of 175, and the largest has just short of 3,500 patients. Those hospitals are being run by the people from your ranks, and they are doing a grand job. We keep a very few regular officers, a commanding officer and an executive officer—probably one or two more; perhaps one or two retired officers who help on the administrative side. You all know that a reserve officer has to have some time to get on to our method of doing things, the old routine that must go on. For that reason we do keep a few of our regular officers in these institutions, but every one of our hospitals is staffed in that fashion.

The specialists' units that we organized years ago, and have kept organizing as we have gone along, have been very valuable to us. Now we are sending these men out into the field. They are in our large mobile hospitals; they are on our hospital ships. We are finding now that we can put these young men on our destroyers after they have had a year's duty in the service. And so, throughout the entire world, we have reserve officers operating in the active units of the fleet, and I think that is a very high compliment to the civilian doctor.

I am not going to invade Dr. Lahey's field to any extent in this, but I want you to know he is doing a grand job, and his committee right with him. The Navy has and is making a hard and fast rule that we take no doctor into our service unless he has been passed by this committee, and we expect to continue that. If the voluntary system is going to work at all, it must work in that way.

In the last war the problem we had to face was a simple one, because we were fighting a war in Europe. All we had to do was simply look out for our ships that were in rather an easy sort of naval war, look out for transports, take care of the people in training within our continental limits and look out for a modest number of casualties.

Today the reverse is true. Aviation is putting a great load on us; it is going to put an ever increasing load on us in the offensive side of this war that is coming on. We are seeing lots of casualties in this South and Southwest Pacific action.

You are going to see one thing happen in this war that didn't happen in the last: the mortality figures will be tremendously high. But I am glad to say today that you are going to see a tremendous improvement in the care of war casualties. We are learning rapidly in this action around the Solomon Islands—and it is a violent one—that war casualties can be cared for, even though we are operating in islands that are certainly isolated. Yet we can get these men into our hospitals, which are put in rather safe places, and that is due to the advance in aviation.

When I was on the West Coast a short time ago I had an opportunity to see the first of our transport planes that we are going to use in this work. They were fitted up to take 15 stretcher cases, and it was felt then that they could carry 35 ambulatory cases. We scaled that down to 12 and 25. By this method we can fly these men out of the islands on the same day of the engagement. We bring them out that night, flying them several hundred miles to one of our large hospitals, where they get their operative treatment the next day; that is, if they are sufficiently out of shock to receive that sort of treatment. They are cared for there. Of the first 1,000 of these cases that came in the mortality rate of these war casualties, head injuries, chest injuries, abdominal and all, was less than 1 per cent. That is a tribute to what medicine has done.

You would be surprised if you knew how they give blood plasma on Guadalcanal. They don't even bother to take a man into the dressing station or the collecting station. They can do it right out in the field and do it well. The wounded are given their morphine, and they are given their plasma if it is needed, they are given their first aid measures and sulfonamide drugs liberally. Then they are moved when they can be moved to a collecting station, and the next operation comes as soon as they can be flown out.

The operation now on Guadalcanal is not all being conducted by marines. We have a large group of the Army fighting right along with us. What I am saying does not go for just us; it goes for the Army as well. It is a fine record of accomplishment.

Research must go on, but we are being faced day after day with problems that are such that call for rather rough and ready research, the practical side of it, such as finding the answer to the underwater blast. That is giving us more concern at this time than any other one problem we have in the Navy. We are losing lots of ships at sea. These destroyers that go in and come under point-blank fire go down fast when they are hit, and the men are left in the water. When a destroyer sinks, the depth charges, which are always there ready to be thrown on the enemy, will explode when they reach a certain depth. There is no way we know to keep that from happening. When this occurs, rather terrible things happen to the men who are swimming in the water. That is bad for the morale of the men who are attempting to rescue them; they see death come to men who are just 50 or 100 feet away. Research is going on in this problem, and also in the air blasts from bomb explosions; but slower progress is being made there.

We have found mechanical means in the short period of three months whereby we can protect the chests of men who are swimming in the water if we can get the body high enough out of the water. We are going to save a lot of lives by that rather rough and ready means. We still haven't perfection, not by a long way, but research is going on.

We can all feel proud of the great part that blood plasma and now human albumin are playing in combating shock. We in the services have a great hope that in this year the answer will be found to be bovine albumin. There is some interesting experimental work going on, some vital work, but there seems to be one little step in the process that has not been cleared. It will be a little time before the National Research Council is ready to pass its approval on the bovine albumin. But the human albumin is working, and working well, and we are now supplying it to ships at sea.

This war is so violent in its form, owing to the tremendous bomb loads that are being carried by planes, and the size of the bombs, that when a bomb goes through into a ship and explodes somewhere down in the lower levels the most peculiar forms of injuries develop.

I want to give a lot of credit to the two or three committees of the National Research Council of our Medical Section for the fine work they have contributed on compound fractures. It has been of great help. The use of sulfonamide drugs in combination with sensible treatment is doing a great deal to bring about the saving of lives, especially on our aircraft carriers. I could tell you stories that would make you weep of the terrific jobs these medical officers have been faced with on these big aircraft carriers. They are the ones that are attacked, and attacked violently. In a few instances doctors have had just an hour or two to get their sick and wounded off and yet, without exception, on the aircraft carriers that have been lost, there was not one wounded man left on board a ship. The results have been so good that it doesn't seem we could continue to have such splendid luck.

When this war is over, our doctors are coming back to this country. There will be thousands and thousands who will go back into civil life, because the Army and the Navy will shrink, as they should, but I hope never to the point they did before. These men are coming back with an entirely different slant on a lot of things. I think we must be careful that they do not come back with the idea that they can practice only one form of medicine. Specialization—yes, we must keep it. But I feel that this organization has a duty to do. It should be the guiding body in specialization in this country.

That brings me to the point of the cost of medical and hospital care. I hope the time never comes when the practice of medicine, or anything that has to do with it, has to come under government control. I think it would be a disaster to this country; it would be a disaster to medicine. When this war is over, money is going to be a scarce article; it is going to be scarce with all of us. This war is going to be mighty tough on all pocketbooks. When this is over the man who makes $1,400 a year or $1,800 or $2,000 is still going to have his family to support. What are you going to do about that group? What are we going to do about the cost of hospital care? How can that man go through a period such as we are going to have without question for ten years after this war finishes?

I am not a pessimist about this; I think it can be done. I believe medicine should start thinking constructively today on that subject. I don't think we should allow organizations that are not competent to dictate to us, but unless we have something sound, so that we can lead the band down the right street and out of a blind alley, we are likely to have something like that shoved on us.

I hope you will give serious thought to this. I do not have the answer at this time; I have some ideas. You are a representative group. You have had years of experience. You see things happen in all sections of the country. Let us be about it, and let us see what we can do.

A lot will be said here today about redistribution of doctors in this country. A lot will be said about the proposition of getting people to move from one place to another. We have no way, as Dr. Rankin has said, to go into New York City, where there are plenty of doctors, and say to John Jones "Out in Nevada the Army and the Navy have taken practically all the doctors, and there is a very fine opportunity." This man will say "But I don't like Nevada," and that is all there is to that. I wonder how we can make some of the sections of the country attractive enough to a lot of the people who can't go into the military services. I wonder how we can find ways and means of utilizing some of our surplus. I know it is difficult to ask a man who has an established practice to go out into a section of the country and work there two or three years and then possibly be faced with the problem of a man coming back who has been there all his life.

There is another knotty problem. I feel rather sorry for the Surgeon General of the Public Health Service, because he has that problem. We in the Army and the Navy have the easy job, if you please. We have the job of seeing that men get through this war with the least trouble possible, and we are going to do it. Why? Because we have been given the tools with which we can work.

On the civil side of this picture there is little that can be given at this time. Without active cooperation from every organization we have today we are not going to get the things that will be necessary to care for certain sections of this country should we fall into the large epidemics that seem to go along with mass troop movements.

I want to express again the appreciation of the Medical Department of the Navy to the members of the American Medical Association. After all, the Navy Medical Corps is a part of you, and you certainly are a large part of us. We are going to do everything we can, as this war goes along, to give you the benefit of the experience we gain day by day in the field. We are not going to hold up any information that we think we should give out or that we think has been proved to be of value. Fortunately, we have our Division of Medical Sciences of the National Research Council, which is of tremendous value. All of us appreciate the sacrifice every man is making and the time he has given during these past two years. I have an opportunity to see a lot of it. I don't know how they do it. I think they must quit work at home. I don't see how they are able to be in Washington giving us the help they have given us.

I am in complete agreement with the President of this Association that medicine should be given a tremendous amount of credit. But I want to go one step further. Let us go ahead and let us do enough so that our critics will be completely confounded and there will be no opportunity for them to point a finger at us in any way, shape or form.

WAR PROBLEMS FOR MEDICINE

FRANK H. LAHEY, M.D.
Chairman, Procurement and Assignment Service for Physicians, Dentists and Veterinarians

I should first express the appreciation of the board to so many men who have participated in Procurement and Assignment, who have played such a great part in whatever it has accomplished up to now. It seems to me I should call attention also to the fact that, as becomes medicine, Procurement and Assignment has not sought publicity to advertise its accomplishments. Perhaps it has been unduly modest in not seeking publicity as relates to its accomplishments.

In spite of the fact that every member of the Procurement and Assignment Service went to Washington with considerable apprehension about how it could function with governmental agencies, every one has been pleased and gratified. Mr. McNutt has been delightful and a most satisfactory person with whom to work. It is always possible to get direct action and prompt action. His understanding sympathy with our problems has been a source of great satisfaction to all of us. I don't know what the Procurement and Assignment Service would have done without Mary Switzer. Mary Switzer is a coordinator extraordinary. She knows every one in Washington. She has a most comprehensive grasp of many situations, and she is apparently trusted by every one who deals with her. She understands, I believe, many of the problems of medicine which have disturbed us, and she has a clear and practical understanding of them.

We should not fail to realize what Dr. Leland has done. Dr. Leland has literally contributed his health to this undertaking. Without the figures he has obtained for us, and the work Major Lueth has carried on so efficiently, the undertaking would have been nowhere near as successful as it is today.

All the offices of the American Medical Association, and its complete resources, have been placed without limit at the disposal of the Procurement and Assignment Service. Olin West's advice and Morris Fishbein's guidance in many problems have been so helpful that I am sure I speak for the board when I say we recognize them with great appreciation. I am fearful lest you think this is a eulogy but, after all, this is the time to speak about how these things have been accomplished.

One of the things I had to deal with was the Budget Committee. It is intangible and we must not be irritated with it. It is the apprehension in Washington that the American Medical Association pulls the strings. At the Bureau of the Budget you have to answer the question Is this all controlled and prompted by the American Medical Association? We should not be too sensitive and gun shy about it. Nowhere, I am certain, has there been, as far as I can see, any obstruction or lack of willingness to cooperate in every way.

There is not a member on the board who wants a thing for himself except to make a contribution. I think I can say to you that this board represents peculiar qualities. Whoever picked it out, I am sure, never had it in mind; but the members of the board have qualities which are desirable to make the group work well, and they have harmony. There is no discord.

The corps areas and state chairmen I pass over with thanks, because I think they are appreciated.

But let us go to another group that is not appreciated, the lower group who do the spade work. They are the sifters; that is, the district and county representatives. They do the personal intelligence work. They are the men, I think, who will not get the reward but who really play such a large part and have played such a large part.

Colonel Seeley really pioneered this, and he put his life and soul into it. He worked late hours, Sundays and holidays and traveled the country.

The Procurement and Assignment Service did not have an easy job making, as it did, four moves within nine months. I wanted to write an editorial—the board thought it was a little too facetious—that it would be a good plan, since we were moving every other month, to get a fleet of trucks, set the girls and officers and typewriters up in the trucks, and we could really accomplish more than we could by carrying records upstairs and downstairs. Now that has all been settled.

I am, in addition, anxious that you understand how cooperative Selective Service has been. General Hershey is a fine man to deal with. He thinks straight, he has a homespun philosophy that is wholesome. Colonel Eanes, Leonard Rowntree and every one else, the Army, the Navy, the Public Health Service and all the branches of the service have helped us. Never has it been impossible for me on short notice to telephone Generals Magee, McIntyre, Parran, the Selective Service, or any other member of the board and get prompt action, appointments and satisfactory replies. And never have they failed to express their appreciation of what medicine is doing.

This problem of quotas has been no easy one. These quotas have not been set up arbitrarily. They have been weighted and counterbalanced in relation to the urban and suburban population and the number of doctors.

The Procurement and Assignment Service had to set up priority obligations. As Colonel Rankin has already said the priority obligation has been to get doctors for the armed forces, particularly within this past year. As Colonel Rankin and so many in Washington have said, the war does not end on January 1 just because we meet our quotas. What are we going to do about these states, including my own, that have not met their quotas? What are we going to do with California, which has met only 81 per cent of its quota? What are we going to do with Connecticut, which has met only 76 per cent of its quota? What are we going to do with Illinois, which has met only 82 per cent of its quota; and Massachusetts which, to my blushing shame, has met only 78 per cent of its quota? If Massachusetts considers itself the Cradle of Liberty, it

should hide its head in shame. What are we going to do with Nevada—less important, perhaps, because it represents such a small number of doctors—with only 65 per cent? And New York, so distressingly only 78 per cent? In New York three nights ago some one in the audience said "The reason so many Southerners are in is because they don't make enough money in their jobs, and they live in rural communities where half of their population is colored, and they had rather be in the Army." If you make any such statement when you are under the quota, it is an apology and not a reason.

The priority obligations of the Procurement and Assignment Service have been:

1. Supplying the doctors for the armed forces. That was easy, because we have had literally a surplus, but it will not be as easy next year.

2. The evaluation of needs. What is the figure of dislocation of people—perhaps not 5,500,000? How many doctors have to be dislocated? Perhaps 3,500; perhaps only 2,000, but at any rate a good many.

The next priority need is the evaluation of dislocation and then how to dislocate them. There are other problems, such as the economic problems: handling them financially and seeing that they do not suffer. What about the quotas for 1943? Has there been a figure settled about what can be spared in relation to the number of doctors for 1943? Yes! What is a standard figure for the population and what are the needs going to be for the rest of the period? Is the percentage of 1 doctor to 1,500 civilian population a fair figure? I have asked the various representatives of the armed forces if they accepted that figure, at least for the present. They accepted it. How will it be handled? Prorated, obviously. What will be the relationship to the states that have run over their quotas? As would be expected, there will be credits to the states that have run over, and there may even be states from which no men may be asked if they have run sufficiently over their quotas. Already two hundred and eighteen physicians have been located in one hundred and fifty-four different communities in twenty-nine different states.

Let us also have in mind some of the obstructions to progress in the war effort which have been depressing me. State licensure has been depressing. When states' rights on such a simple thing as dislocation of a doctor can obstruct meeting a problem such as this, it denotes no other thing than a lack of realization of what the real war problem is.

Let us give credit to the U. S. Public Health Service, which, at the request of the Procurement and Assignment Service, has completed tables for each state showing distribution of physicians by counties, classified by section, race, specialist, general practice, those in full time positions, also population per physician and per private practitioner over 65. Comparable data by sampling of states is going on for 1943.

One other phase has been personality problems. In some of our states have been personalities that have been difficult to deal with. I have a formula for that which I think is good. Personality problems are luxuries to be reserved for peacetime. They are contributions against the war effort, and not contributions for it.

Because we have had a dislocation problem in the state of Oregon; because we have a representative of the state of Oregon here who has met this problem, who has to leave this afternoon; because they have met it so satisfactorily that it might even be a suggested pattern for others who have to meet it, could we hear from him briefly on how they have met this problem in relation to the Kaiser shipbuilding problem in Vancouver, Washington?

DISCUSSION

DR. JOHN HAROLD FITZGIBBON, Portland, Ore.: Our problem in the Pacific Northwest is different, no doubt, from the problems elsewhere in the country. I am not advising you that our solution will be the solution to any of your problems. Perhaps our method of study may help you to arrive at a solution of your individual problems. The shipyard problem in the Pacific Northwest is not limited entirely to the Kaiser interests. The Kaiser yards have received the most publicity and are turning out the most ships and the fastest production. There are in the Portland area, in addition to the yard at Vancouver, Wash., and two Kaiser yards in Portland, several other small shipyards that are employing a vast number of men and women. The Washington problem and the Oregon problem are interrelated, as far as Vancouver is concerned, because Vancouver might almost be considered part of Oregon if it were not for the state line. It lies across the river from Portland, and the bridge between the two cities makes them almost one metropolitan area. However, the Vancouver problem is entirely different from the Portland problem, because Vancouver is a smaller city of about 22,000, with twenty to twenty-five physicians, about one third of whom are now in the armed forces, leaving a definite shortage. In Portland proper we have a medical center with a medical school, a large number of physicians, a metropolitan area which must be taken care of, plus patients who come from a distance in all directions.

There have been remarks in the press recently about the Vancouver situation which I feel are entirely unjustified. I know they are unjustified because the comments made were due to misinterpretation of Procurement and Assignment directives which were issued and which were followed by the Washington Procurement and Assignment men. In Oregon, when the Kaiser interests opened, a demand was made that the physicians take the Kaiser employees, their wives and dependents, on a family coverage basis. We were told that this would be done—or else! We did not know just what the "or else" implied, but we did know that it implied the building of a hospital or hospitals locally and the importation of salaried physicians to take care of these people. As a result of the efforts of the state and county medical societies, a contract was made with the Kaiser company whereby the employees who choose to be covered may be cared for under the Oregon Physicians' Service. This is a medical society approved plan operated under the board of medical economics of the state medical society on an entirely voluntary basis. Employees who do not want to be covered are not covered. There is no salary deduction unless the employee elects to be covered. A charge of 60 cents a week is made covering hospitalization and medical care. The Oregon State Association of Hospitals takes care of the hospitalization. The Oregon Physicians' Service takes care of medical care. They are entirely separate organizations associated in this problem. The care does not cover accidents on the job. The state industrial accident commission takes care of accidents on the job and we handle only sickness. Between the state society and the industrial accident commission there is ideal cooperation, so that expenses are pooled and apportioned according to the needs. Many of the employees are covered—perhaps 30,000 or 40,000. Many, many thousands have not elected to take the coverage and are coming in as private patients. Our population normally in the metropolitan area is about 350,000. During the last year that population has increased to 450,000. Mr. Kaiser informed us the other day that additional employees are being brought in for further ways which are being laid, so that we shall have before spring an additional 90,000 to 120,000 people. We accept 90,000 as the most likely figure, which will bring our population to 540,000.

Mr. Edgar Kaiser, the son, who is in charge of the Northwest yards, came to the Oregon State Medical Society on October 23 and stated his problem, his responsibility to these people, whom he considers individuals who have come there to help his organization in the war effort, and who we consider are medical responsibilities. He told us as nearly as he could what his future contracts would call for and what we could expect in the way of population load. He asked us whether we thought hospitals should be built and whether doctors should be imported. Out of this conference a committee called the Oregon War Emergency Health Committee, of which I am chairman, was appointed. This committee represents the state medical society, two county medical societies, a branch of the medical women's association, the dental association, the nurses, the licensing boards, medical, dental and nursing examiners, the public health agencies as represented by the state, county and city health officers, the pharmacists and the visiting nurses. We have fifteen different health groups represented by their own appointees on the committee. The problem was presented to this composite committee, and a chairman from each group was told to go into his own group and appoint a subcommittee to carry out the investigation and bring in a report at the next meeting. The reports were brought in, compiled and discussed by the entire committee; then this working report was organized. We started first with public health. We realize that the public health phase is of the utmost importance, because the importation of people from all over the country brings all sorts of diseases, smallpox, diphtheria, malaria and we know not what else, including perhaps a great deal of tuberculosis. The county society urged the state, county and city public health agencies to take steps immediately to immunize as rapidly as possible all newcomers who are not already immunized against smallpox, diphtheria and typhoid, if thought necessary, and to take measures against contamination of various kinds. One housing project alone will house about 50,000 people, which is a small city in itself, in an area that has never had a physician or an office, or anything but a farm building or perhaps a fishing dock. The physicians of the city had a mass meeting—not a

society meeting, but representing all the physicians, both society and nonsociety physicians—and went on record as offering their services gratis to the public health agencies to carry out this immunization campaign. We requested the press to help us. The contiguous hospitals will be enlarged. We have from the public health men definite plans for enlarging. We know where to put the partitions, how many beds to order, where the plumbing is to be.

The problem of general hospital beds was the one we thought would be most difficult. However, the hospital association promptly brought back a statement of exactly how many beds it had, how many it had in storage, how many were ordered, how many were needed and how many rooms not containing beds could be used as hospital rooms for patients if the beds could be obtained. We found, to our surprise and joy, that we could immediately increase our hospital beds by 307; that we could, by changing one of the nurses' homes, which had been a hospital, back into a hospital and housing the nurses in barracks, add another 85 or 90 beds. By going to the county commissioners—the county hospital no longer has enough patients to keep the interns busy—we can perhaps get permission to put private patients in the county hospital and in the Dornbecker Hospital for Children. Another hospital, which had been closed several years ago and made into a home for unfortunate girls who were poverty stricken—there being no unfortunate girls who are poverty stricken now—can be returned to the status of a hospital, giving another 50 beds. So out of this study we have definitely shown that we can almost immediately develop 400 additional beds.

We are making a pregnancy survey. For some reason or other, during wartime the pregnancy peak goes up, and our town is not an exception. We hope to find out how many pregnant women there are in town, when they are due, and plat a graph so the hospitals can figure on when they are coming in. We are going to try to shorten the period of hospitalization, but unfortunately we cannot send the women home because one cannot hire any maids to work in the house. They can go to the shipyards, and they say "There is no sense being a maid for $150 a month when I can go to the shipyard and get $250." We are going to try to get some of the nonpracticing nurses—those who are married, partly disabled or something—to take some of these mothers, after a week's hospitalization, into their homes and perhaps help them on their way for a week or two. Then we hope to be able to change insurance policies. If we can get insurance companies to change their policies, their disability policies, so that they will read, not that the fee will be paid during the period of hospitalization, but during the period of disability, which ordinarily would require hospitalization, we can get rid of a lot of people who are sitting around hospitals collecting insurance. If we can get walking-cast patients out of the hospital and into boarding houses, there is no sense in an industrial accident patient sitting around waiting for weeks until his cast is taken off, when a private patient would be home. Boarding houses will have to be provided to take care of them.

At this mass meeting the question was put to the physicians "Can you do more work and, if so, will you do more work? What are you willing to do?" A written answer was requested from each man with his signature. It was unanimously agreed that the physicians now on the job could handle this increased load.

We had originally 550 physicians, or 727 persons to the physician. We have lost 150 already to military service and through death and disability, which gives us 1,125 patients to the physician. We have about 25 more men who will go into the services after processing which, with our additional 90,000 people, will then give us 1 physician to each 1,500 persons. The medical men have decided that they can and they will handle the situation on a private practice basis. The first step is to request the housing authorities to do something which they have apparently forgotten, to build doctors' offices in these projects and rent them to physicians who will go in and carry on private practice. Other physicians who feel they cannot spend full time have offered to go in on a part time basis. Three or four men will agree to handle one office and keep it going full time. The other men in town, particularly those in industrial areas, are willing to carry on evening office hours. Our big problem is the day worker. We must get as many man hours per worker as possible in order to keep up production. Our swing shift and night shift workers can come in as day patients during office hours, but the day workers who stay on the job must be seen after office hours. We feel that the local men should be given an opportunity to carry out this proposed plan before we ask the Procurement and Assignment Service and have men brought in.

The dentists have not yet submitted their plan, but they say they are willing to do anything they are asked to do. The nurses have studied their situation. We are going to have to get more nurses' aides, more hospital lay workers, and change the type of nursing in the area. The nurses have suggested that if we will make some sort of arrangement whereby they can be utilized as nurses and not as janitors, maids, back rubbers, florists taking care of bouquets, telephone girls telling Mrs. Jones that Mrs. Smith is much better today, with visiting hours cut down and rugs taken out of rooms, and all sorts of frills omitted, they can get by. They are cooperating to the fullest degree, and I believe we shall have the nursing problem settled. We have the ball and we are somewhere near the middle of the field. We have made at least one first down, and we intend to keep on carrying the ball before calling for outside aid. However, if you have any men who are well qualified physicians who care to migrate, we won't frown on that. We don't care to have the men who can't make good somewhere else just come in there because there is an opportunity.

The physicians of the community have an obligation to the men who have gone into the armed forces. In a recent visit to our University of Oregon unit at Fort Riley the question asked me by the medical officers there more often than anything else was "What are you fellows doing for us when we get back? What are you doing to maintain the standards of practice, and what are we coming back to? Are we coming back to socialized medicine or are we better off if we stay in the Army?" The answer now is that we have the ball, and we are going to try to keep on carrying it.

SOME PERSONNEL PROBLEMS OF THE SURGEON GENERAL OF THE ARMY

BRIGADIER GENERAL CHARLES C. HILLMAN
Medical Corps, United States Army

I wish to express the appreciation of the Surgeon General for the unstinted cooperation of the medical profession of this country—the American Medical Association and its constituent bodies—to the sister services, the Navy, the Army, Selective Service and the National Research Council. Without their full cooperation, the work of the Surgeon General of the Army would have been much, much harder than it has been.

The response of the medical profession to the War Department's recruiting program has been most gratifying. To date, eleven months after the declaration of war, there are on active duty, or under orders, nearly 36,000 medical officers, the number exceeding by 5,000 those in the Army at the time of the armistice in 1918. The physicians of the country have been called on, individually and collectively, to make sacrifices for the war effort far in excess of those demanded or expected of any other professional, technical or scientific group. Notwithstanding these facts, the medical profession will necessarily be subjected to further demands as augmentation of the military forces, as announced by the Secretary of War, continues.

It is now over two years since the Seventy-Sixth Congress empowered the President to order into active military duty for twelve months' training any or all of the officers of both reserve components; that is, the Officers' Reserve Corps and the National Guard of the United States. This call was with or without the officers' consent and was, as we all realize, absolutely necessary in order to make effective the National Selective Service and Training Act of 1940. At that time the Medical Corps of the regular establishment of 1,230 was reinforced by 450 reserve officers on voluntary active duty. One year later, on Dec. 7, 1941, this number had been increased to 11,400. Today, as I have said, it approaches 36,000.

The immediate response of the medical profession to the national emergency was, I must admit, not very encouraging. New appointments were rather slow in materializing. By May of this year there was only a total of 13,000 medical officers in the Army to meet requirements numbering about 21,000. At that time active recruiting in all the states was begun. The response was immediate and generous and has continued so.

Few of us had ever dared think of the mobilization of an army greater than 4,000,000 men. For this size army physicians could be procured in adequate numbers without undue disruption of the medical economy of the nation. Plans for the utilization of medical officers were made accordingly. However, the computed requirements for such a service for the ever expanding army are such that strict account must now be taken of the availability of the cloth for our garment, and our pattern modified so as to fit our requirements to the maximum number of physicians who may be expected to be available for military service.

By careful planning and a 25 per cent over-all reduction of our present accepted requirements, this will be possible. The Surgeon General has requested that the War Manpower Commission, acting through the Procurement and Assignment Service, make "available" additional physicians who may volunteer their services to the Army to bring the strength of the Medical Corps to military adequacy, based on the aforementioned reduced ratio, for a force of seven and one-half million. This means that we must maintain our present rate of procurement of 1,000 physicians each month. I feel confident that the latter will be maintained but ask your assistance especially in procuring the younger officers whom we so greatly need; the young active physicians who may be appointed in the grade of lieutenant and assigned to combat troops, to divisions, to tank battalions, to para troops, to Air Corps squadrons.

The Surgeon General, while sincerely appreciating the loyal offer of service of the physicians above Selective Service age, realizes that their acceptance for the Army creates in civilian communities the shortage of physicians which may necessitate the deferment of the military service of the younger men. It is the duty and the prerogative of the latter to enter the armed forces of the country and to serve as did their fathers in 1917 and 1918.

Such deferment of physicians as may be considered essential to the health and safety of the community will be on the advice of the Procurement and Assignment Service to which Selective Service, the Navy and the Army turn for information regarding the "availability" of physicians for the armed forces. Applicants declared "essential" by this service are granted commissions neither by the Navy nor by the Army. Selective Service boards make use of such information in determining the occupational deferment of registrants.

Since essentiality is necessarily a relative status, the increasing requirements of the armed forces necessitate continued revision of the essential lists prepared by the state chairmen of the Procurement and Assignment Service in conjunction with the authorized representative of the state and county medical societies. From such lists the Army will be furnished the names of additional physicians who may be declared "nonessential" to the local community.

The assistance of the Procurement and Assignment Service has been of inestimable value; its active participation in the War Department's recruiting program has not only made it possible to procure the large number of physicians required for the military service but also prevented the absolute confusion and the disruption of civilian medical service which I am sure would have resulted from indiscriminate recruiting and uncontrolled appointment.

Every effort has been made to effect appropriate assignments of medical officers. In occasional instances errors have been made, in others it has been necessary knowingly to assign individuals to duties which failed to utilize their professional attainments. However, a determined effort has been made to relieve physicians from administrative and other nonprofessional assignments and to restore them to their role of doctors caring for the sick and injured. It is believed that a short review of the training program of the Medical Department as it has been developed to fit medical officers better for their particular assignments and to train nonmedical men to fill ancillary positions in medical facilities will be of interest.

TRAINING OF MEDICAL OFFICERS

No distinction has been made in the training of Regular Army, National Guard or Reserve officers. Officers of all components have been equally eligible and have attended the same courses. Training facilities have been made available by expanding existing Medical Department special service schools, by the establishment of new schools and by utilizing training facilities in civilian universities and in industries. The Surgeon General has as far as possible held to the fundamental concept that (1) junior officers not yet specialized should be given thorough basic tactical instruction on entrance in the military service and later be assigned to the field forces, thereby reserving fixed hospital service to members of affiliated units, limited service personnel and highly specialized officers of older age; (2) that Medical Corps officers should be relieved from all administrative duties wherever and whenever possible by officers of the Medical Administrative Corps. To implement this policy, the facilities of the Medical Field Service School have been tremendously expanded, Medical Administrative Corps officer candidate schools with a current entering quota of one thousand three hundred each month have been established, and tables of organization have been revised to place Medical Administrative Corps officers in all possible administrative positions, thus reserving to the Medical Corps officer professional activities. As a result, at no time in Medical Department history have so many varied duties been assumed by the Medical Administrative Corps.

The procurement objective for Medical Administrative Corps officers as of Jan. 1, 1943 was slightly over eight thousand, which means that an equal number of doctors will be spared to duties which may be and are being done by lay personnel. As a specific example, in one of our large medical replacement training centers the total allocation of officers to this center is four hundred and ninety-seven, only ninety-three of whom are of the Medical Corps and four hundred and four of whom are of the Medical Administrative Corps. The few Medical Corps officers present are pooled and utilized to teach only the technical subjects.

Facilities at the Medical Field Service School at Carlisle Barracks, Pennsylvania, have been expanded from sixty officers a year in 1939 until it is now possible to accommodate either one thousand five hundred officers at one time for six week courses of instruction or seven hundred and fifty officers and seven hundred and fifty officer candidates. Flexibility at this school may thus be exercised, depending on the requirements.

The training facilities of the Professional Service Schools, Army Medical Center, Washington, D. C., have been expanded from approximately seventy-five students yearly capacity in 1939 to a number in excess of one thousand five hundred at the present time. Special emphasis is being placed on training in tropical medicine, the facilities providing for six two month sessions, each accommodating two hundred students, making a total of one thousand two hundred trained in this subject annually.

The course in Roentgenology which has been maintained at the Professional Service School with an entering quota of fifty each month is being moved Jan. 1, 1943 to the University of Tennessee Medical School, Memphis, Tenn., and will be expanded to accommodate approximately one hundred officers and one hundred enlisted technicians.

The Medical Department has currently authorized pools for a total of eight hundred officers at general hospitals, where they receive basic military and hospital administrative training. Circular Letter No. 48, S. G. O., prescribes the training program to be utilized. Parallel job type of training is utilized; that is, potential executive officers actually understudy executive officers for one to two months. The medical replacement training centers and the medical field service school are also authorized a total pool of five hundred officers. Newly commissioned officers at these installations receive basic military and tactical instruction for one to two months. In addition they have an opportunity for applicatory exercise in command functions, since troops are readily available. These individuals are then considered as suitably trained for field assignments.

Prior to July 1942 the restriction in the National Defense Act prohibited the Army sending other than Regular Army officers to civilian institutions. This restriction eventually was removed and each branch is now permitted to send to civilian schools up to 2 per cent of its commissioned strength at any one time. Through the extensive surveys and recommendations made by the various subcommittees of the National Research Council, the Surgeon General has submitted a definite program of civilian institutional training in the professional specialties to the War Department for approval, secured the necessary funds, executed the required contracts with the universities concerned and set this program into operation. The Surgeon General acknowledges great indebtedness to the Division of Medical Sciences of the National Research Council for its earnest cooperation and assistance. Without this assistance the initiation of these courses would have been difficult or impossible.

In order that Medical Corps officers may be conserved for professional duties, schools for medical administrative corps officers have been established and expanded until one thousand three hundred are entering these schools each month and approximately one thousand one hundred will graduate each month. The course of instruction is of three months duration. These schools not only serve to conserve Medical Corps officers to professional duties but afford every enlisted man with the requisite leadership qualifications an opportunity of becoming a commissioned officer.

The appointment of sanitary engineers, laboratory specialists, nutritionists and other scientific and technical personnel in the Sanitary Corps is likewise making possible not only a better medical service but also the economic reassignment of medical officers. I assure you that economy in the use of physicians in the military service is being carefully planned.

Let us turn for a moment to our overseas hospital units, especially our numbered general hospitals. You are all doubtlessly acquainted with the groups of integrated officers and nurses which have been organized by outstanding hospitals and medical schools throughout the country—our affiliated units. Despite the administrative difficulties of their organization and the confusion which only too frequently resulted from their peculiar status, the fundamental result has thoroughly justified the Surgeon General's action in again adopting the scheme of sponsored units which was so successful in 1917 and 1918. General and evacuation hospitals organized by these schools and hospitals are now in all of our far flung theaters of operation. Others now in training are awaiting departure overseas. Sixteen have not been ordered into active duty, their personnel having remained available to the school or hospital, and to the civilian community, awaiting economical utilization in the military service. When these remaining units are finally activated, we must organize a great many more, not from physicians in civil life, but from those already on duty and from newly appointed medical officers. It is not contemplated that the principle of affiliation will be extended.

Before closing may I touch briefly on an aspect of our personnel problem which, while principally a provision for the future of the Army, is a present perplexity for you. I refer to the significance of the lowering of the Selective Service age to 18 years to medical education.

As you know, adequate provisions have been made for students now actually matriculating in approved medical schools. Through their appointment in the Medical Administrative Corps they are placed under military jurisdiction and in an inactive status permitted to complete their medical education to include twelve month internship in approved hospitals. However, it is apparent that unless some provision is made to assure a minimum of two years' premedical education there will be no medical students next year or in succeeding years. Only women and the physically unfit would be able to enter medical school.

I regret that I do not have the details, but I am assured that the War Department is working out plans to provide the necessary future supply of personnel—professional, technical and scientific. I trust that equally comprehensive plans may be developed by the War Manpower Commission for essential industries and civilian communities. It is obvious that the supply of future physicians required both for the military and for the civilian effort must not be curtailed at the source.

DISCUSSION

CHAIRMAN SHOULDERS: One question occurs to the Chair with reference to the matter of quotas for the Army and quotas for physicians. As Dr. Lahey stated, the quota is 1 doctor for 1,500 population, whereas the Army has the quota, I believe, of 6.5 per thousand. Has there been any alteration or any approach to the question with reference to any adjustments that may be necessary?

DR. FRANK H. LAHEY: Admiral McIntire has stated that the Navy will function on 6.5. Aviation has stated the same. The Army, I am sure, will go along with any reasonable figure. They don't know quite what they are going to have to deal with in the way of casualties, but I believe in this plan we have set up some figures which are workable now.

DR. STANLEY B. WELD, Hartford, Conn.: I wish that Surgeon General McIntire might have enlarged a little more on the question of what we are going to do with specialization in the postwar period. I have a letter which was sent to me from one of our sister states in New England that really belongs to Dr. Lahey, and I am going to read it at this time, hoping he may be able to answer these questions:

"Two things bother me a bit, and if at Chicago some one can explain, then I will be appreciative at least.

"1. Why is it a man can volunteer for induction into the armed forces, be rejected by an examining board and told he is unfit and to go do something in way of a job, and then have his Selective Board classify him in 1-A and order him up for examination and he is accepted pronto? Are there two grades, one for the Selective Service and one for volunteers?

"2. Why was all this talk that the Procurement and Assignment agency would not strip the smaller communities of medical men, or allow it to be done, and then act directly the opposite? Why were the younger men summarily designated as available in many cases without the local Procurement and Assignment member being asked for his opinions? Also this: Why in some places did Washington go over the heads of the state Procurement and Assignment director and direct a local army officer to turn on the heat to any man under a certain age?

"Some men in the Army Medical Corps from civilian life seem to be imbued with the idea that they should be tough and simply will not consult with the county Procurement and Assignment representative who should know about the situation. If he doesn't, then he should be summarily fired."

BRIGADIER GENERAL HILLMAN: There is an adequate explanation, I feel, for that first question, as to why men are first rejected and then are later called up and accepted. This is a changing period. My own ideas about physical standards have necessarily been modified according to the demand. It is a little like the ratio of medical officers. We are trying to cut our garment to fit the cloth we have. We have had to reduce our standards, and with successive editions of our Mobilization Regulation 1-9, which sets forth physical standards, the standards have been reduced. For instance, the visual standards have been definitely reduced from what they were originally. You can see that, with the reduction of eye standards, the local boards are justified in sending up a great number of men who were rejected originally because of defective vision. A lot of those individuals are accepted. The local boards in many instances were not able to supply a sufficient number of men according to the existing regulations, and the War Department saw a number of men coming into the service below their requirements. The War Department turned on the heat and said "You have certain standards, but let's just don't be quite so punctilious about those standards. Let's have a little lower threshold of admission into the Army." Selective Service sent back individuals. With that change in atmosphere it permitted them to be accepted when they would not otherwise be accepted.

CHAIRMAN SHOULDERS: Is the physical standard of the Army for a commission above the standard of the draft board?

BRIGADIER GENERAL HILLMAN: At present anybody who is inducted into the service under Selective Service is eligible, as far as his physical condition is concerned, to attend an officers' training school. The Army does not necessarily promise him that he can attend an officers' training school for general service, but it does promise him an opportunity, if he is otherwise qualified, to obtain a commission.

Let me explain for just a moment why we can't have limited service standards for induction, and limited service standards for appointment as an officer, and general service standards for induction and general service standards for appointment as an officer parallel.

Let's go back to the eye situation again. We feel that an individual with vision of 22/100, corrected to 20/20 with glasses, can serve as an enlisted man, but because of the greater responsibility of the officer and the necessity for him to use complicated optical instruments in the direction of artillery fire, in the observation of signals, in the observation of aircraft, we feel he must have a fair standard of vision because of his greater responsibilities and the need, you might say, for his protecting the lives and safety of the organization. So the standards are not exactly parallel. But a man who is inducted in the service will not be debarred physically from getting a commission for limited or general service if he can be kept in the service. If it is found, when he comes up for examination for officers' training camp, that he has a condition which precludes his serving as an officer, then he would be released from military service and discharged on a certificate of disability.

Our standards as to appointment have materially changed in the last two years as the need for more and more officers in the service has become evident. Individuals were refused commissions over the past year or two years because of not meeting certain physical standards, and they have been given the opportunity to stay in the Reserve Corps if they had fifteen or more years' service in the Reserve. Otherwise they were allowed to resign or be discharged. Some of those individuals have come up before army induction boards, and the army induction boards have not paid much attention to the defects they have shown, and which have been the cause for rejection as officers, and they have been inducted. But such individuals who have been inducted can write to the War Department and remind the War Department of their previous status as a reserve officer, and the fact that they were discharged from the Reserve because of a physical defect and get that defect waived.

DR. HOLMAN TAYLOR, Fort Worth, Texas: Do I understand the General to say that a doctor who has been inducted into the service as an enlisted man and has been sent to an officers' training school and found not to meet the physical requirements will be discharged from the service or will he, rather, revert to the status of an enlisted man?

BRIGADIER GENERAL HILLMAN: A graduate physician, if he is kept in the service, will get to serve as a physician and be appointed as a physician.

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COL. LEONARD G. ROWNTREE: The standards for acceptance depend on three things: The urgency of the need is first, the size and nature of the pool, and the size and nature of the service you want to fill. As these three are constantly changing, so the standards change. In the beginning we had a large group of 1-B men who were kept to one side during the last four months, and by the first of the year that will be completed. The whole group has been reexamined, and a large proportion of that group is now in the Army that was not acceptable before. We have perhaps a million and a half men in the 4-F group. This 4-F group will have to be subjected to reexamination and reclassification for the reason given by General Hillman, the changing standards due to the changing urgency of need.

DR. WILFRED HAUGHEY, Battle Creek, Mich.: This is a question of examination of inductees before they are sent to the induction center; that is, the men are called up and the local examining board examines them in our localities. If a man has one glass eye we have to send him on. If he has a complete atresia of the ear canal, what are we going to do? We know those fellows won't be accepted by the Army. We are told that in some places in this country—in three states that have been given to us—local examinations are not being made, only the laboratory checkup, and so forth, is made, and that the doctors don't have to put in this time out of their tremendously busy hours in going over such a haphazard method of examination where we ship them on, and we know they can't pass. They pay no attention to it. If we pass them, they go to the induction center.

COLONEL ROWNTREE: You were misinformed as to three states proceeding on the basis of no examination. That is not correct. The standards have been set up in conference with the War Department and the Surgeon General's Office, and it has been decided what the procedure shall be. The procedure is working out effectively, particularly where the regulations are followed.

DR. CREIGHTON BARKER, New Haven, Conn.: A physician applies for a commission in good faith, and he is examined by a medical examining unit. He is found disqualified and is told by the Surgeon General he is not eligible for appointment to a commission status. Then the next week or perhaps the next month this man is picked up in the Selective Service, is brought before his local screening examination and they don't throw anybody out if he can struggle up the stairs. He is sent up the induction line, and the induction line, having a different standard of physical qualifications, will order that man for induction, unless by some circumvention of the law we pick that fellow off the induction line. That, I believe, is the question that has been propounded, and up to now it hasn't been answered.

COLONEL ROWNTREE: It seems to me that General Hillman gave a specific and direct answer to it. Both actions were actions of the induction board. In one instance it was an examination for a place as an officer. The next is the induction board examining that man and he is taken into service. He also went further to say that, if a man is well qualified, he is fished out and either given professional service or, if he cannot qualify, is given his certificate of disability for discharge.

DR. A. T. MCCORMACK, Louisville, Ky.: I want to speak of one group that hasn't been mentioned. Many of us represent agricultural states. After all is said and done, we can say what we please about industry and about all the other elements in this total war, but the one group that is essential to the preservation of this country and of civilization is the farmer and the food producers. They are the only people who produce new wealth in this country, and it is absolutely essential that we make provision not only for medical care but for keeping them on the farm. It is not at all important that the problem is all solved. As soon as they find out how good they are, every farmer wants to go to that place, because he gets good medical attention, good food and everything else. What are we going to do to take care of the health and lives of farmers of this country? I was in a rural section of Kentucky the other day where, within 50 miles, 86 per cent of the women are delivered by midwives because there are no doctors. That is a section of Kentucky where the birth rate is the highest in the United States, and it is contiguous to Tennessee. It has some of their same habits. It is a very important section of the country, because it has produced leaders for this country. It has produced laborers, it has produced bankers and it has produced statesmen. We have twenty-six counties in Kentucky from which no physician has gone to the armed forces. They are in the same fix they were in before the war; they are still short. We have only six that have gone below 2,000 population per physician since war has been declared. That problem still remains, and that problem has to be answered and has to be answered by the medical profession.

(To be continued)

THE VICTORY TAX AND THE MEDICAL PROFESSION

PREPARED BY THE BUREAU OF LEGAL MEDICINE AND LEGISLATION

The Revenue Act of 1942 imposes a victory tax on individuals amounting to 5 per cent of their victory tax net income. This tax is in addition to all other taxes imposed by the new act, applies to income received after Dec. 31, 1942, and will continue in effect during the present war. The act provides that the victory tax shall not apply with respect to any tax year commencing after "the date of cessation of hostilities in the present war." Physicians of course will be subject to this tax to the same extent as other taxpayers.

The return that a physician must file on or before March 15, 1943, will not reflect the victory tax net income of the taxpayer nor will the victory tax be payable at that time. Since the new tax applies only to income received *after* Dec. 31, 1942, and since the next return includes only income *prior* to Jan. 1, 1943, assuming that the physician is on a calendar year basis for income tax purposes, physicians generally need not be concerned with the payment of the victory tax until their returns are executed, in 1944, for the tax year 1943. There are certain aspects, however, of the victory tax provisions of the new act that will impose requirements on physicians beginning with the first of the year.

PHYSICIANS WHO ARE EMPLOYERS

If a physician on or after Jan. 1, 1943, employs any person, subject to certain exceptions discussed later on, and pays to such a person a wage in excess of $12 a week, or $624 a year, he must withhold the 5 per cent victory tax from that wage and transmit it to the government at quarterly intervals.

What Constitutes Wages.—Affirmatively, the term "wages" means all remuneration, other than fees paid to a public official, for services performed by an employee for his employer, including the cash value of all remuneration paid in any medium other than cash.

Negatively, the term does not include remuneration paid (1) for services performed as a member of the military or naval forces of the United States, other than pensions and retired pay; (2) for agricultural labor; (3) for domestic service in a private home, local college club or local chapter of a college fraternity or sorority; (4) for casual labor not in the course of the employer's trade or business; (5) for services as an employee of a nonresident alien individual, foreign partnership or foreign corporation, if such individual, partnership or corporation is not engaged in trade or business in the United States; (6) for services as an employee of a foreign government or any wholly owned instrumentality thereof, and (7) for services performed as an employee while outside the United States, unless the major part of the services performed during the calendar year by such employee for his employer are performed within the United States. Persons who perform services in the foregoing seven categories are

not exempt from the payment of the victory tax, but their employers are not required to withhold the tax from their wages.

The definition of the term "wage," therefore, is broad enough to include the remuneration paid by a physician to an assistant physician, an office nurse, a stenographer, a secretary, a receptionist and other personnel employed by the physician in connection with his practice.

Withholding Deductions.—Not all of an employee's wage is subject to the victory tax; only that in excess of $624 a year. In computing the 5 per cent victory tax to be withheld, therefore, the employer will disregard the wages paid for each payroll period in accordance with the following schedule:

Payroll period	Withholding Deduction
Weekly	$ 12
Biweekly	24
Semimonthly	26
Monthly	52
Quarterly	156
Semiannually	312
Annually	624

That is, if the payroll period for a particular employee is a week, the tax does not apply to the first $12 paid the employee; if the payroll period is a month, the first $52 escapes the victory tax, and so on. All wages paid in excess of the indicated amounts for each payroll period are subject to the tax and employers must either withhold 5 per cent of that excess or an amount in accordance with tables set forth in the act. These tables indicate optional amounts an employer may withhold instead of the actual 5 per cent of the wage. As an example, for a weekly payroll period, if the wage paid is over $12 and not over $16, 10 cents weekly may be withheld. If the wage is over $20 but not over $24, 50 cents may be withheld and so on for different wage groups for different payroll periods. The use of these tables will simplify greatly the withholding process and physicians should ascertain from the office of the collectors of internal revenue where copies of the table may be obtained.

The law provides that, if a payroll period is less than one week, the excess of the aggregate of the wages paid during each calendar week over the deduction allowed for a weekly payroll period must be used in computing the tax required to be withheld. For example, if an employee is paid on a daily basis at the rate of $5 a day, the employer will not withhold any of the wage paid for the first two days of employment in any calendar week. The wages paid for a third day in the same calendar week will be subject to withholding on $3, the excess of the aggregate of three days' wages, or $15, over the weekly deduction of $12. All subsequent wage payments during the same calendar week will be subject to withholding on the entire amount of each payment. If a payroll period is not covered specifically by the foregoing table, the deduction allowed against each payment of such wages will be the deduction allowable in case of an annual payroll period divided by 365 and multiplied by the number of days in such period, including Sundays and holidays.

In any case in which wages are paid by an employer without regard to any payroll period or other period, the deduction allowable against each payment of such wages will be the deduction allowable in the case of an annual payroll period divided by 365 days and multiplied by the number of days, including Sundays and holidays, which have elapsed since the date of the last payment of such wages by such employer during the calendar year, or the date of commencement of employment with such employer during such year or January 1 of such year, whichever is the later.

In withholding the victory tax, the employer gives no consideration at all to the marital status of the employee or to any dependents that the employee may have, or to any possible deductions to which the employee may be entitled, other than the basic deduction of $12 a week.

Transmission of Withheld Tax to Government.—The employer who has withheld the victory tax from wages paid to employees is required to transmit the withheld tax to the government on or before the last day of the month following the close of each quarter of each calendar year. The first report to be made by an employer to the government, therefore, will be due on or before April 30, 1943. Such an employer must keep such records and render under oath such statements with respect to the tax withheld and collected as may be required under regulations prescribed by the Commissioner of Internal Revenue with the approval of the Secretary of the Treasury.

Receipts to Employees.—Every employer withholding the victory tax must furnish to each employee, on or before January 31 of the succeeding year, or, if the employment is terminated before the close of the calendar year, on the day on which the last payment of wages is made, a written statement showing the period covered by the statement, the wages paid by the employer to such employee during such period, and the amount of the tax withheld and collected. Duplicate copies of such statements must be transmitted to the Commissioner of Internal Revenue along with the final report made by the employer for the calendar year.

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PHYSICIANS WHO ARE EMPLOYEES

A physician who is an employee may expect deductions to be made from his wages in accordance with the procedure outlined. The deductions will be made by the employer, subject to the exceptions previously noted, whether that employer is the federal or a state government, a county, a municipality, any agency or instrumentality thereof, a hospital, an industrial or business concern or other person or agency paying wages to a physician. While physicians generally will not be required to pay the victory tax until 1944, and then on income received during 1943, physicians who fall in the category of employees will start paying the tax periodically in 1943 as it is deducted from their wages by their employers.

At the end of the tax year 1943 the victory tax that has been withheld from the wages of a physician employee will be adjusted. This adjustment will take place when the return for 1943 is filed the early part of 1944. At that time the victory tax will be redetermined on the return then filed and credit taken for the amounts that have been withheld from wages. Since the amounts so withheld are based on 5 per cent of the *gross* income in excess of $624 a year and since the actual victory tax imposed is 5 per cent of the *victory tax net income*, that is, gross income minus specified deductions in addition to the $624, there will in many instances be an excess in the amount withheld over the tax actually due. In such case that excess may be deducted from the income tax that will be payable. In all cases, therefore, in which employers have withheld, during 1943, periodic amounts from wages on account of the victory tax, there will be

adjustments between the government and the taxpayer at the close of the tax year if such adjustments are necessary.

POSTWAR CREDIT OR REFUND OF VICTORY TAX

As soon as practicable after the date of cessation of hostilities in the present war, the following amounts of victory tax paid for each taxable year beginning after Dec. 31, 1942 will be credited against any income tax or instalment thereof then due from the taxpayer and any balance will be refunded immediately to the taxpayer:

1. In the case of a single person or married person not living with husband or wife, 25 per cent of the victory tax or $500, whichever is the lesser.

2. In the case of the head of a family, 40 per cent of the victory tax or $1,000, whichever is the lesser. In the case of a married person living with husband or wife where separate returns are filed by each spouse, 40 per cent of the victory tax or $500, whichever is the lesser. In the case of a married person living with husband or wife where a separate return is filed by one spouse and no return is filed by the other spouse, or in case of a husband and wife filing a joint return, only one such credit will be allowed and such credit may not exceed 40 per cent of the victory tax or $1,000, whichever is the lesser.

3. For each dependent, excluding as a dependent, in the case of the head of a family, one who would be excluded as a dependent for income tax purposes, 2 per cent or $100, whichever is the lesser.

If for any taxable year the status of the taxpayer, other than a taxpayer whose gross income is $3,000 or under and who uses the simplified return form, with respect to his marital relationship or with respect to his dependents, changes during the taxable year, the amount of the credit or refund of the victory tax for such taxable year will be apportioned, under rules and regulations prescribed by the Commissioner of Internal Revenue with the approval of the Secretary of the Treasury in accordance with the months to and after the change. For the purpose of such apportionment, the fractional part of a month will be disregarded unless it amounts to more than one-half a month, in which case it will be considered as a month.

The law contains provisions under which a taxpayer may, prior to the cessation of hostilities, take advantage of his postwar credit or refund. To the extent of that credit or refund, the taxpayer may reduce the victory tax by deducting amounts paid during the year as premiums on life insurance in force on Sept. 1, 1942, certain reductions of debts and certain investments in obligations of the United States. At the end of 1943 and of each year thereafter in which the victory tax is imposed the taxpayer may, with respect to that tax, do one of two things: (1) He may pay the victory tax in full and wait until the cessation of hostilities to claim his postwar refund or credit, or (2) he may at the time the victory tax is payable reduce the amount of the tax by deducting expenditures for purposes above described in an amount equal to the postwar refund or credit to which he would be entitled after the cessation of hostilities. Assume that Dr. X, an unmarried physician with no dependents, when he executes his return on or before March 15, 1944, finds himself owing a victory tax of $100. Assume, further, that during 1943 Dr. X purchased government bonds, paid premiums on life insurance and reduced indebtedness, expending a total amount of $1,000 for such purposes. Dr. X may pay the $100 victory tax during 1944 and after the cessation of hostilities receive a refund or credit of 25 per cent of the tax, or $25, or he may reduce the victory tax payable in 1944 by claiming credit for the amount expended for the purposes stated but only to the extent of the postwar credit to which he would be entitled, that is, $25. In the one case, Dr. X pays the full victory tax of $100 and gets a refund or credit later; in the other he pays $75 and will not thereafter receive a refund or credit.

No attempt has been made to discuss in detail the intricacies of the victory tax. The object has been rather to present a broad picture with many of the technical details omitted. As previously stated, the tax does not extend to 1942 incomes and physicians generally will not have to compute the amount of the tax they must pay until the returns are filed on or before March 15, 1944. Before that time arrives, it is assumed that proper regulations will be promulgated and be given wide publicity, which will simplify the procedure for the determination of the tax.

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FIFTH ANNUAL CONGRESS ON INDUSTRIAL HEALTH

The fifth Annual Congress on Industrial Health, sponsored by the Council on Industrial Health of the American Medical Association, will be held Monday, Tuesday and Wednesday, Jan. 11-13, 1943, at the Palmer House in Chicago. These meetings are open to physicians and others interested in industrial health. There is no registration fee. The preliminary program is as follows:

MONDAY, JANUARY 11—OPENING SESSION, 9:45 A. M.

Report of the Council on Industrial Health.
STANLEY J. SEGER, M.D., Chairman, Texarkana, Texas.
The Physician and Industrial Mobilization.
Speaker to be announced.
Preventive Medicine in Industry.
JOHN H. FOULGER, M.D., Wilmington, Delaware.
Director, Haskell Laboratory of Industrial Toxicology.
Employer-Management Cooperation for Industrial Health.
WENDELL LUND, Washington, D. C.
Director, Labor Production Division, War Production Board.
Procurement and Training of Professional Personnel for Industrial Health Service.
CLARENCE D. SELBY, M.D., Detroit.
Chairman, Subcommittee on Industrial Health and Medicine, Federal Security Agency.

RED LACQUER ROOM

MONDAY—AFTERNOON SESSION, 2 O'CLOCK

Ocular Signs of Industrial Poisoning.
ROY S. BONSIB, New York.
Chief Safety Inspector, Standard Oil Company (New Jersey).

COMMON INFECTIONS IN INDUSTRY

(Joint Presentation by the Council on Pharmacy and Chemistry and the Council on Industrial Health, American Medical Association)

Newer Concepts in the Prevention and Treatment of Wound Infections.
AUSTIN E. SMITH, M.D., Chicago.
Secretary, Council on Pharmacy and Chemistry.
Recognition, Prevention and Essential Treatment of Occupational Dermatitis, with Particular Reference to Oil Dermatitis and Folliculitis.
Report of Committee on Occupational Dermatoses, American Medical Association.
Respiratory Infections in Industry: Joint Report Prepared by the Council on Pharmacy and Chemistry and the Council on Industrial Health, American Medical Association.
CHESTER S. KEEFER, M.D., Boston.
Wade Professor of Medicine, Boston University School of Medicine.
Program of Immunization for Industrial Workers.
1. Vaccines and Serums: Indications and Procedure.
JAMES P. LEAKE, M.D., Bethesda, Md.
Medical Director, Epidemiological Section, U. S. Public Health Service, National Institute of Health.
2. Problems of Organization and Administration.
LEVERETT D. BRISTOL, M.D., New York.
Health Director, American Telephone and Telegraph Company.

RED LACQUER ROOM

MONDAY—EVENING SESSION, 6:30 O'CLOCK

STATE SOCIETIES DINNER AND ROUND TABLE

An informal dinner and round table discussion, intended primarily for the personnel of committees on industrial health in state and county medical societies, will be held. Subjects for discussion will be:

Local Organization for Industrial Health Services.
Recent Experiences in Postgraduate Industrial Medical Education.

CRYSTAL ROOM

TUESDAY, JANUARY 12—MORNING SESSION, 9 O'CLOCK

Industrial Physical Examinations: Report of the Committee on Physical Examinations of the Council on Industrial Health, American Medical Association.
HARVEY BARTLE, M.D., Philadelphia, Chairman.
Occupational Disease in Munitions Workers.
LEMUEL C. MCGEE, M.D., Wilmington, Delaware.
Medical Director, Hercules Powder Company.
Optimum Hours of Work.
JAMES G. TOWNSEND, M.D., Bethesda, Md.
Chief, Division of Industrial Hygiene, National Institute of Health.

HEALTH PROBLEMS ASSOCIATED WITH THE CHANGING CHARACTER OF THE WORK FORCE

Women in Industry: Preliminary Report of the Committee on the Health of Women in Industry, Section on Obstetrics and Gynecology, American Medical Association.
H. CLOSE HESSELTINE, M.D., Chicago, Chairman.
Prehabilitation: A Report and Recommendations.
WILLIAM A. SAWYER, M.D., Rochester, N. Y.
Chairman, Industrial Health Committee, Section on Preventive and Industrial Medicine and Public Health, American Medical Association.
Recent Developments in Rehabilitation.
Speaker to be announced.
The Older Worker.
ANTON J. CARLSON, M.D., Chicago.
Professor of Physiology, University of Chicago.

RED LACQUER ROOM

TUESDAY—AFTERNOON SESSION, 2 O'CLOCK

INDUSTRIAL MEDICAL PRACTICE AND THE EMERGENCY

Correlation of Industrial Medical Organization with Community Emergency Medical Service.
WARD L. MOULD, M.D., Washington, D. C.
Surgeon (R), U. S. P. H. S., Medical Adviser, Industrial Plants, Office of Civilian Defense.
Procurement and Disposition of Medical and Surgical Supplies.
FRED J. STOCK, Washington, D. C.
Deputy Chief, Health Supplies Branch Division of Industry Operations War Production Board.

STREAMLINING INDUSTRIAL MEDICAL SERVICE

How to Get Along with Less Help.
1. Legitimate Shortcuts in Routine Services.
2. Can We Secure and Train Technical Assistants for Certain Routine Industrial Health Procedures?
EDWARD C. HOLMBLAD, M.D., Chicago.
Managing Director, American Association of Industrial Physicians and Surgeons.
Outline of Procedure for Nurses and Aides in Industry.
A Report by the Council on Industrial Health, American Medical Association.
How to Make Industrial Medical Records Work for You.
M. H. MASSON, M.D., New York.
Medical Director, New York Telephone Company.
Processing Industrial Physical Examinations.
FRED B. WISHARD, M.D., Anderson, Ind.
Medical Director, Delco-Remy Division, General Motors Corporation.

Resuscitation: A Review and Demonstration.
HART E. FISHER, M.D., Chicago.
Medical Director, Chicago Rapid Transit Company.

RED LACQUER ROOM

TUESDAY, JANUARY 12—MORNING SESSION, 9:30 O'CLOCK

SYMPOSIUM ON MEDICAL RELATIONS IN WORKMEN'S COMPENSATION

(Joint Presentation by the Bureau of Legal Medicine and Legislation and the Council on Industrial Health, American Medical Association.)
Report of the Committee on Workmen's Compensation of the Council on Industrial Health.
RAYMOND HUSSEY, M.D., Baltimore, Chairman.
Workmen's Compensation: The Shape of Things to Come.
HENRY D. SAYER, New York.
General Manager, Compensation Insurance Rating Board.
Control of Medical Testimony: The Minnesota Plan.
ERNEST M. HAMMES, M.D., St. Paul.
Chairman, Committee on Medical Testimony, Minnesota State Medical Association.
Allergy: Its Place in Compensation Procedure.
J. ALEXANDER CLARKE JR., M.D., Philadelphia.
Chairman, Committee on Workmen's Compensation of the Society for the Study of Asthma and Allied Conditions.
Practical Problems in Framing Occupational Disease Legislation.
Speaker to be announced.

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TUESDAY—AFTERNOON SESSION, 2 O'CLOCK

SYMPOSIUM ON REHABILITATION

(Jointly Sponsored by the Council on Physical Therapy and the Council on Industrial Health, American Medical Association.)
Better Local Organization for Improved Industrial Medicine, Surgery and Hygiene.
CARL M. PETERSON, M.D., Chicago.
Secretary, Council on Industrial Health.
Psychiatric Problems in Rehabilitation.
ALFRED P. SOLOMON, M.D., Chicago.
Assistant Professor of Psychiatry, University of Illinois College of Medicine.
Physical and Occupational Therapy in Rehabilitation.
JOHN S. COULTER, M.D., Chicago.
Chairman, Council on Physical Therapy.
The Future of Rehabilitation.
TERRY FOSTER, Washington, D. C.
Research Agent, Vocational Rehabilitation Division, U. S. Office of Education.

ROOM 17

WEDNESDAY, JANUARY 13—MORNING SESSION, 10 O'CLOCK

SYMPOSIUM ON NUTRITION IN INDUSTRY

(Jointly Sponsored by the Council on Foods and Nutrition and the Council on Industrial Health, American Medical Association.)
Criteria for the Evaluation of Nutrition Experience in Industry.
FRANKLIN C. BING, PH.D., Chicago.
Secretary, Council on Foods and Nutrition.
Progress in the National Program on Nutrition in Industry.
ROBERT S. GOODHART, M.D., Washington, D. C.
Committee on Nutrition in Industry, National Research Council.
Current Nutritional Activity in Industry: A Review and Appraisal.
GEORGE R. COWGILL, PH.D., New Haven.
Associate Professor of Physiological Chemistry, Yale University School of Medicine.
Round Table Discussion.

RED LACQUER ROOM

WEDNESDAY—AFTERNOON SESSION, 2:30 O'CLOCK

DINNER AND EVENING SESSION, 6:30 O'CLOCK

A Conference on Industrial Health will be presented under the auspices of the Chicago Medical Society and the Illinois Manufacturers' Association, together with many additional local and state collaborating agencies.

RED LACQUER ROOM

SPECIAL EVENTS

MONDAY, JANUARY 11, 12:30

LUNCHEON CONFERENCE

Industrial Hygiene Abroad.
WILLIAM A. SAWYER, M.D., Rochester, N. Y.
WILLIAM P. YANT, Pittsburgh.

TUESDAY, JANUARY 12, 12:30

LUNCHEON

Value of Qualified Physicians in the Personnel of Workmen's Compensation Commissions.
VERNE A. ZIMMER, Washington, D. C.
Director, Division of Labor Standards, U. S. Department of Labor.

TUESDAY, JANUARY 12, 12:30

LUNCHEON AND ROUND TABLE

(Sponsored by the Committee on Industrial Ophthalmology, American Medical Association.)
Experiences in Setting Up a Visual Program for Safety and Production in a War Plant.
H. GLENN GARDINER, M.D.
Medical Director, Foote Brothers Gear and Machine Corporation, Chicago.

WEDNESDAY, JANUARY 13, 12:30

LUNCHEON

Can We Eat Our Way to Health or Sickness?
MORRIS FISHBEIN, M.D., Chicago.
Editor, Journal of the American Medical Association.

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Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

ARKANSAS

Norman Baker Denied Supreme Court Review.—Norman Baker, Eureka Springs, serving a four year sentence in the federal penitentiary at Leavenworth, Kan., failed to obtain a supreme court review of his contention that he had been denied a fair trial, according to the Davenport *Times*, November 16. He sought a review of a decision by the tenth federal circuit court, which denied him a writ of habeas corpus, it was stated. Baker was convicted in the federal district court at Little Rock on a charge of using the mail to defraud in connection with alleged claims for the cure of cancer.

CONNECTICUT

Personal.—Dr. John C. White, New Britain, has been appointed superintendent of the New Britain General Hospital, succeeding Mr. James S. North, resigned.——Dr. John F. Kilgus Jr., Litchfield, has been appointed medical examiner for the towns of Litchfield and Morris, succeeding Dr. Harry B. Hanchett, Torrington, who has been acting medical examiner since the death of Dr. Robert A. Marcy, Litchfield.——Dr. Leonard Parente, Hartford, was appointed medical director and adviser for the Connecticut State Department of Public Welfare, effective September 1. He will organize and administer the state medical care program for the department.

Hospitals Adopt "Rationing" Program for Maternity Service.—St. Vincent's and Bridgeport hospitals, Bridgeport, have adopted a new program to reduce the average hospitalization of maternity patients to seven days after delivery of the baby. At the discretion of the physician, mothers will be hospitalized longer. The new regulation is part of a code which has been adopted, in cooperation with the state medical society and the state board of health, to lessen the demands on hospital personnel. Patients will be asked to cooperate by lessening the number of demands on the time of nurses in instances in which the service has no bearing on the safety of the patient. Suggestions toward that end and other objectives of the new code have been prepared by the public health committee of the state medical society. Visiting hours for all patients will be from 7 to 8 p. m.; religious ceremonies will be arranged for at home after discharge from the hospital, and, in the event that the ceremony must take place in the hospital, witnesses will be limited to 3 persons. A father will be shown his baby once before the child is prepared for leaving the hospital. Flowers will be received only in special containers which require no time for nurses for arrangement, watering and other attention. Bridgeport florists have agreed to cooperate by supplying chemically treated paper containers in which flowers are already arranged and to which only water need be added. The saving of time of nurses, otherwise occupied with nonessential duties, will be employed to augment the night nursing service.

DISTRICT OF COLUMBIA

New Professor of Surgery.—Dr. Fred R. Sanderson, associate professor of surgery at Georgetown University School of Medicine, has been appointed professor of surgery and director of the department and chief surgeon of Georgetown University Hospital, succeeding the late Dr. James A. Cahill. Dr. Sanderson, who has been a member of the faculty since 1923, graduated at Georgetown in 1915.

Society News.—The Medical Society of the District of Columbia devoted its meeting, November 18, to a panel discussion on undulant fever, brucellosis and Bang's disease. The speakers were Lieut. Col. Arthur Parker Hitchens, M. C., U. S. Army, Philadelphia, and Brig. Gen. Raymond A. Kelser, M. C., U. S. Army, Washington, D. C.——Dr. Ella Oppenheimer was elected president of the District Society for the Prevention of Blindness at its annual meeting recently and Dr. William S. Anderson was named corresponding secretary of the society. Dr. William Thornwall Davis discussed "The Place of the Community Organization for the Prevention of Blindness in Time of War."

INDIANA

Physician Pardoned.—Dr. Paul B. Arbogast, Vincennes, who has served one year of a sentence of from two to fourteen years for presenting false claims against the Vincennes township poor fund, on November 12 received a parole discharge and pardon from the state clemency commission. The Princeton *Democrat*, November 12, reported that the commission had received requests from numerous Knox County citizens for the release of the physician so that he could return to his profession. The pardon terms make Dr. Arbogast eligible for immediate restoration of his license to practice medicine, the application of which is to be acted on by the state board of registration.

MASSACHUSETTS

Silver Cup Awarded to State Hospitals.—The American Hospital Association, during its recent meeting in St. Louis, awarded to the Massachusetts Hospital Association and to the Blue Cross a silver cup in recognition of the best statewide observance of National Hospital Day, May 12. Dr. Charles F. Wilinsky, Boston, president of the Massachusetts Hospital Association, accepted the cup in behalf of the hospitals that participated in the observance. The cup will remain the permanent property of the hospital association and the Blue Cross.

Administrative Committee for School of Dental Medicine.—An administrative committee has been appointed for the Harvard School of Dental Medicine to carry out general administrative responsibilities. A. LeRoy Johnson, D.D.S., New York, who has just been appointed professor of clinical dentistry in the new school, has been named executive officer of the committee. Other members are Percy R. Howe, D.D.S., Thomas Alexander Forsyth professor of dental science, emeritus; Kurt H. Thoma, D.M.D., professor of oral surgery and Charles A. Brackett professor of oral pathology, and Dr. C. Sidney Burwell, dean of the medical school, chairman.

Tract of Land Given to Tufts College.—Tufts College announces the gift of a tract of land in downtown Boston from Mr. A. Shapiro, Brookline. The property, consisting of five buildings on Tyler Street, was formerly owned by Denison House and adjoins property on Harrison Avenue recently purchased by the college. It is adjacent to the hospitals and dispensaries of the New England Medical Center, of which the Tufts College Medical School is the teaching base. The land was purchased, according to Mr. Shapiro, so that there will be "plenty of elbow room" around the proposed three quarter million dollar medical building. Leonard Carmichael, LL.D., president of Tufts College, stated that the gift was prompted by the donor's appreciation of the rural medical extension program being developed by the Tufts faculty at the New England Medical Center, a project whereby many local communities in Maine were benefiting from the school's extension of laboratory and diagnostic services, training of local hospital technicians and assistance in organizing emergency medical protection, such as a statewide network of civilian blood banks. President Carmichael also announced, according to the *New England Journal of Medicine*, that more than $500,000 has now been subscribed for the new building for the medical school, and efforts are being made to complete the fund so that construction may start as soon as conditions permit.

MICHIGAN

Personal.—St. Mary's Hospital, Detroit, held a dinner, November 7, at the Hotel Statler to honor Dr. William A. Repp, Detroit, on his completion of fifty years in the practice of medicine and as a member of the staff of the hospital.——Dr. Marie A. Hagele, Lansing, upper peninsula regional consultant in maternal and child health for the state department of health since 1939, has resigned to join the staff of the Sault Ste. Marie polyclinic. Dr. Hagele had also been acting director of the Alger-Schoolcraft Health Department for the last month.

Cooperative Study of Mouth Conditions in Escanaba.—The U. S. Public Health Service, the University of Michigan and the state health department are cooperating in a study of mouth conditions of children in Escanaba, seeking particularly to measure discovered amounts of acid forming bacteria which cause decay. According to *Public Health News*, the study now being carried on in Escanaba has been undertaken because the projected use of fluorine-bearing water by that city in the future will afford a basis of comparison with mouth conditions found there now. Escanaba now obtains its water supply from Bay de Noc, but to obtain more satisfactory supplies wells have been driven which produce water containing 0.5 per million part of fluorine. The new supply cannot be turned into mains until the war ends because it is impossible to obtain necessary pumping equipment. *Public Health News*

stated that there is reason to believe that the quantity of fluorine present in the water obtained from the Escanaba wells is adequate to lessen tooth decay without causing mottling. It is known that 1 part per million of fluorine will cause such mottling in some instances.

MINNESOTA

Physician's Portrait Given to Hospital.—A portrait of Dr. Walter H. Valentine, Tracy, was presented to the Tracy Hospital by Dr. Herman F. McChesney, Brooklyn, a cousin and classmate of Dr. Valentine at Carleton College, Northfield, in the nineties, according to *Minnesota Medicine*. Dr. Valentine graduated at the University of Minnesota Medical School, Minneapolis, in 1900 and started in practice the same year in Tracy. The gift was made to mark Dr. Valentine's many contributions of service to the community. The portrait is the work of Walter Scott Darr, New York.

Kenny Poliomyelitis Institute.—The Public Health Center, formerly known as the Lymanhurst Health Center, Minneapolis, has now been officially designated the Elizabeth Kenny Poliomyelitis Institute. Miss Kenny's clinic is established there and will operate under its present financial setup until January 1, when the Minneapolis Welfare Board will set up a board of trustees to supervise finances after that time, according to *Minnesota Medicine*. The city heart clinic now being operated in the same building will continue there, but its budget will be kept separate from that of the poliomyelitis institute, it was stated.

Hospital News.—Dr. Magnus C. Petersen has resigned as medical superintendent of the Willmar State Hospital, Willmar, to accept a similar position at the Rochester State Hospital, Rochester, succeeding Dr. Benjamin F. Smith, who became superintendent of the St. Joseph's Hospital, St. Joseph, Mo. Dr. George H. Freeman, medical superintendent of the St. Peter State Hospital, St. Peter, is acting superintendent at the Willmar institution pending the appointment of a successor to Dr. Petersen. —— Dr. Francis E. Harrington has been appointed director of the Minneapolis General Hospital during the absence of Dr. Donald W. Pollard, who is in active service.

Grant to Establish Professorship in Cancer Research.—The Citizens Aid Society of Minneapolis has given $5,500 a year for five years to the University of Minnesota, Minneapolis, to support what will be known as the George Chase Christian professorship in cancer research. It will be the first professorial chair in the medical school to be named for an individual. The first incumbent to the new position will be John J. Bittner, Ph.D., associate director and vice president of the board of directors of the Roscoe B. Jackson Memorial Laboratory, Bar Harbor, Maine. Working with Dr. Bittner will be Drs. Maurice B. Visscher, professor of physiology and head of the department, and Robert G. Green, professor of bacteriology and immunology, who are studying the etiology of mammary cancer in mice. Dr. Bittner will approach the cancer problem as a geneticist, Dr. Visscher as a physiologist and Dr. Green as a bacteriologist with a special interest in viruses. Three factors in the etiology of mouse cancer on which the three men have been working are that cancer is transferred by an agent in mother's milk, that mammary gland development is stimulated by estrogenic substance and the likelihood that a virus agent is present in advance of the cancer development. Dr. Bittner will move to Minneapolis as soon as housing and laboratory arrangements can be made. He was born in Meadville, Pa., in 1904, graduated at St. Stephens College in 1925 and became a research assistant at the University of Michigan, Ann Arbor, in 1927, receiving his Ph.D. there in 1930. He delivered the George Chase Christian lecture at the University of Minnesota in 1940. The Cancer Institute in the University Hospital is a memorial to the late Mr. Christian, and Mrs. Christian, a resident of Minneapolis, has encouraged the Citizens Aid Society in support of cancer research for many years.

MISSOURI

Barnard Hospital Lecture.—Dr. Francis Peyton Rous of the Rockefeller Institute for Medical Research, New York, delivered the fourth annual Barnard Free Skin and Cancer Hospital Lecture before the St. Louis Medical Society, November 17, on "The Nearer Causes of Cancer."

Cornerstone Laid for New Health Center.—The cornerstone of the new brick health center for St. Louis County was laid with appropriate ceremonies in Clayton on October 27. The structure, which is expected to be completed in April, is being erected with the assistance of federal funds and will cost more than $500,000. When completed, it will serve as a national training center for public health student physicians and nurses. It will also replace the temporary inadequate headquarters of the county health department and relieve overcrowding at the St. Louis County Hospital, adding eighty beds to the present two hundred bed capacity, according to the St. Louis *Post Dispatch*. The center will be a five story building with a three story wing. All of the department's clinics will be housed on the first floor. The second and third floors will be used for administrative offices, class rooms and lecture halls. On the fourth floor will be a forty bed pediatric isolation ward, and on the fifth a forty bed ward for adults with ailments which present special problems for study.

NEBRASKA

New State Health Officer.—Dr. Claude A. Selby, North Platte, formerly president of the Nebraska State Medical Association, has been appointed director of health of the Nebraska State Health Department.

NEW HAMPSHIRE

Health Plan Expanded at New Hampshire University.—A war program of physical fitness for women patterned after the physical training given the WAACs and WAVEs was started at the University of New Hampshire, Durham, November 30, according to the New York *Times*. The basic war program would include conditioning and rhythmics, with a supplementary program of individual gymnastics, skating, basketball and community games.

Dr. Edward Colby Appointed Acting Director of Epidemiology Division.—Dr. Edward W. Colby, Exeter, health officer of the Eastern Health District of the state board of health, has been appointed acting director of the division of epidemiology and venereal disease control of the state department at Concord. Dr. Colby will continue as health officer of the Eastern Health District until a new health officer has been appointed. THE JOURNAL, November 14, page 852, attributed this appointment to Dr. Cleon W. Colby, who is in private practice at Exeter.

NEW JERSEY

Squibb Biologic Laboratories Expanded.—Completion of the important new additions to the biologic laboratories of E. R. Squibb and Sons, New Brunswick, are being translated into enlarged production of serums and vaccines to assist in the war effort, it is announced. The latest building expansion move includes a three story extension to the main laboratory building and two new one story individual laboratory structures. A portion of the new main laboratory addition will be devoted to the preparation of human serum albumin, developed under the direction of Edwin J. Cohn, Ph.D., professor of biochemistry at Harvard Medical School, Boston, which is to be used in the armed forces for the prevention and treatment of shock (THE JOURNAL, November 28, p. 1041). Two smaller one story buildings will be devoted respectively to the manufacture of typhus vaccine and smallpox vaccine.

NEW YORK

Fighters in White—A Movie.—The state department of health has recently released a sound motion picture entitled "Fighters in White." Describing the organization and operation of the emergency medical service, the picture is now being booked in motion picture theaters throughout the state.

Personal.—A commemorative medal in honor of the late Dr. Aaron L. Higgins, at one time president of the Nassau County Medical Society and for twenty years physician for the St. Agnes Knights of Columbus council in Rockville Center, will be awarded annually by the council to a pupil in St. Agnes Grammar School, it is reported. Dr. Higgins died on July 17.

Society News.—The Buffalo Academy of Medicine will be addressed, December 9, by Drs. Clyde L. Randall on "Vaginal Discharges"; Louis A. Siegel, "Endocrines in Obstetrics and Gynecology," and Edward G. Winkler, "Forceps Delivery." All are from Buffalo.——Dr. Winthrop M. Phelps, Baltimore, lectured at the Children's Hospital of Buffalo, December 2, on "Treatment of Cerebral Palsies." The lecture was given in connection with the observance of the fiftieth anniversary of the hospital.

New York City

Clinics for Antirabies Injections Closed.—The Bronx and Queens clinics for the treatment of persons needing antirabies injections were to be closed, November 2, because of "the general need of physicians and the fact that the number

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of patients at the antirabies clinic fluctuates," according to the Bronx *Home News*. Persons requiring such treatment in Queens will have to go to the Brooklyn Clinic, it was stated.

Physicians' Hobby Show.—An art exhibit and hobby show, sponsored in cooperation with Eimer and Amend, opened November 17 at the Apothecary to continue until December 18. The display includes etchings, paintings, sculpture and photography of physicians in the metropolitan area. Included in the exhibit are etchings which have been donated by the members of the Haden Etching Club, a group of physicians and dentists. The proceeds of the sales of these etchings will be turned over to the American Flying Services Foundation, which is giving medical services to correct the minor physical defects that bar American youth from acceptance by the army and navy air service.

Medical-Dental Meeting.—The twelfth annual combined medical-dental meeting of the organized medical and dental professions of Greater New York will be held at the Hotel Pennsylvania on December 7. Participants will include James E. Aiguier, D.D.S., Philadelphia, on "Pain Control Before, During and After Dental Procedures"; Dr. Harold T. Hyman, "Interrelationships Between Medical and Dental Practices"; Commander Lloyd R. Newhouser, M. C., U. S. Navy, "Treatment of Shock, Including Use of Blood Plasma," and William J. Gies, Ph.D., "Résumé of Research on Dental Caries." Representatives of the army and navy dental corps will discuss "War Injuries."

Changes in Faculty at New York University.—Included among recent appointments to New York University College of Medicine are the following:

Drs. Walter Guernsey Frey Jr. and Frank C. Keil to assistant clinical professors of ophthalmology.
Chester W. Hampel, Ph.D., to visiting professor of physiology.
Dr. Theodore Rosenthal to assistant professor of preventive medicine.
Drs. John Dennis Cooney and Herbert M. Ill to associate clinical professors of urology.
Mark H. Adams, to assistant professor of bacteriology.

The following promotions were also announced:

Dr. Joseph Pick to professor of anatomy.
Dr. Timothy J. Riordan to associate clinical professor of dermatology and syphilology.
Drs. Maurice J. Costello and William Director to assistant clinical professors of dermatology and syphilology.
Dr. James A. Shannon to associate professor of medicine.
Dr. Robert S. Goodhart (on leave of absence for government service) to assistant professor of medicine.
Dr. Charles E. Kossmann (on leave of absence for military service) to assistant professor of medicine.
Dr. Harry Most to assistant professor of clinical pathology.
Dr. Joseph J. Bunim to assistant professor of clinical medicine.
Dr. Morris B. Bender to assistant professor of neurology.
Dr. Conrad Berens to professor of ophthalmology.
Dr. John C. McCauley Jr. to associate professor of clinical orthopedic surgery.
Dr. William A. Walker to associate clinical professor of orthopedic surgery.
Dr. Ernst W. Bergmann to assistant clinical professor of orthopedic surgery.
Drs. David H. Goldstein and Harry Most to assistant professors of preventive medicine.
Dr. Morris Herman to assistant professor of psychiatry.
Dr. Charles Gottlieb to professor of clinical radiology and acting head of the department of radiology.
Dr. Harry A. D. O'Connor (on leave of absence for military service) to assistant professor of clinical surgery.

PENNSYLVANIA

Society News.—Dr. Howard K. Petry, Harrisburg, discussed "Shock Treatment of Psychoses" before the Dauphin County Medical Society in Harrisburg, November 3.——Dr. Robert W. Staley, Pittsburgh, addressed the Huntingdon County Medical Society in Huntingdon recently on "Shock Therapy in Mental Disorders."——The Berks County Medical Society was addressed in Reading, November 10 by Dr. Herbert T. Kelly, Philadelphia, on "Medical Aspects of Nutrition."

Philadelphia

The Mütter Lecture.—Dr. Hiram Winnett Orr, Lincoln, Neb., delivered the fifty-fifth Thomas Dent Mütter Lecture before the College of Physicians of Philadelphia and the Philadelphia County Medical Society, December 2. His subject was "Physiologic Protection from Infection in Wounds and Compound Fractures."

Outbreak of Ringworm.—Thirty children have been sent home from one school because of an outbreak of ringworm, the Philadelphia *Inquirier* reported on November 1. It was stated that the disease was appearing in other city schools. Dr. Hubley R. Owen, city director of public health, asked the cooperation of parents in controlling the disease. School physicians and nurses will notify parents if a child is found to have been infected, and parents were asked to consult the family physician or visit a hospital skin clinic at once.

Graduate Course in Industrial Medicine and Hygiene.—A postgraduate course of industrial medicine and hygiene will open at the Philadelphia County Medical Society, January 5, under the auspices of the committees on industrial health of the society and the state medical society and directed by the departments of preventive medicine and public health of the University of Pennsylvania School of Medicine and the Woman's Medical College of Pennsylvania. Eight weeks will be devoted to the course, which will be concluded on February 27. A wide range of subjects will be covered, including a consideration of general problems, the worker and the job, learning the scope of the field, physical factors affecting health, extreme of air pressures, general safety measures in accident prevention, nonoccupational and allied disease hazards in industry, tuberculosis in industry, toxicology, some of the more complex or hazardous industries, the specialties in industries, changes in industry due to war, presenting special hazards, compensation and medicolegal factors and orientation of medical efforts for health supervision in the future.

TENNESSEE

Health Department Moves.—The Memphis and Shelby County Health Department recently moved into a four story remodeled building which once was the home of the University of Tennessee School of Pharmacy. The building is 35 years old and was named Lindsley Hall in honor of Dr. John Berrien Lindsley, the organizer and first dean of the Medical Department of the University of Nashville. Till 1929 it was the main building of the school of pharmacy and, until taken over by the health department, was used as one of the buildings of the outpatient department of the University of Tennessee College of Medicine, Memphis. The outpatient department is now housed in the new psychiatric building on Madison Avenue named Gaylor Hall. All units of the county health department are now located in the building, but offices of the health commissioner will be retained in the old quarters at the courthouse.

TEXAS

Activities at University of Texas.—The faculty of the University of Texas Medical Branch, Galveston, has agreed to discontinue the department of legal and cultural medicine, established in 1940 in the effort to administer as a single unit the library, social service, medical illustration and hospital record room. The library has been restored to independent status, and social service, medical illustration and hospital records were placed under the hospital administration. The faculty also abolished the stenographic and technical bureaus and restored secretaries and technicians to various departments as needed. Dr. Carl A. Nau, formerly director of the industrial hygiene division of the state department of health, Austin, has been appointed professor of preventive medicine and public health at the university.

VIRGINIA

Personal.—Dr. M. Pierce Rucker has succeeded Dr. Wyndham B. Blanton as editor of the *Virginia Medical Monthly*, both of Richmond.——Carl C. Speidel, Ph.D., professor of anatomy at the University of Virginia, Charlottesville, received the honorary degree of doctor of science, October 23, at the Founder's Day exercises of Lafayette College.

Special Society Elections.—Dr. John S. Weitzel, Richmond, was named president of the Virginia Pediatric Society at its recent meeting in Roanoke and Dr. Edwin A. Harper, Lynchburg, vice president. Dr. Emily Gardner, Richmond, is the secretary-treasurer.——At a meeting of the Virginia Radiological Society in Roanoke, October 6, the following officers were reelected: Drs. Wright Clarkson, Petersburg, president; Clayton W. Eley, Norfolk, vice president, and Charles H. Peterson, Roanoke, secretary-treasurer.——Dr. Bryant E. Harrell, Norfolk, was elected president of the Virginia Urological Society at its meeting in Roanoke, October 6, Dr. Thomas B. Washington, Richmond, vice president, and Dr. Warren W. Koontz, Lynchburg, reelected secretary.

WASHINGTON

Head of Industrial Unit.—Dr. Lloyd M. Farner, Nashville, Tenn., U. S. Public Health Service, has been placed in charge of the new industrial hygiene division of the state department of health. Dr. Farner, who has been lent to the state by the public health service, organized and served as director of a similar division in Montana and later as director of industrial hygiene in Tennessee.

WEST VIRGINIA

Personal.—Dr. Guy Hinsdale, who for thirteen years served as medical director of the Greenbrier Hotel and Cottages, White Sulphur Springs, has moved to Lewisburg. The former "spa" has been taken over by the government to be converted into an army hospital.——Dr. Lenore V. L. Patrick, Chippewa Falls, Wis., formerly with the Wisconsin State Board of Health, has been appointed chief of the bureau of maternal and child health of the West Virginia Department of Health, it is reported.

WISCONSIN

Forum on Intestinal Tract.—The Medical Society of Milwaukee County sponsored three lectures on the gastrointestinal tract, November 2-4, in the form of an open forum. Functional disorders were discussed by Drs. Walter C. Alvarez, Rochester, Minn.; Walter A. Brussock, Frederick W. Madison and Roland A. Jefferson, all of Milwaukee; neoplasms by Drs. William A. O'Brien, Minneapolis; John Edwin Habbe and Joseph M. King, both of Milwaukee, and inflammatory disorders by Drs. Rudolf Schindler, Chicago; William M. Jermain, Gervase S. Flaherty and Silvanus A. Morton, all of Milwaukee.

Helmholz Lecture.—Dr. Harry Goldblatt, professor of experimental pathology, Western Reserve University School of Medicine, Cleveland, delivered the annual A. C. Helmholz Lecture before the University of Wisconsin Medical Society, November 5, on "Experimental Observations on Hypertension." The Helmholz Lecture is financed by funds which were left to the university for the purpose by the children of Mr. and Mrs. August C. Helmholz, who were long residents of Milwaukee. Dr. Henry F. Helmholz, Rochester, Minn., one of the children, graduated at Wisconsin and received his degree at Johns Hopkins University School of Medicine, Baltimore, 1906.

GENERAL

College of Physicians Cancels 1943 Meeting.—The board of regents of the American College of Physicians has announced the cancellation of the 1943 annual session, which was scheduled to be held in Philadelphia, April 13-16.

National Board Examinations.—In order to fit the examinations of the National Board of Medical Examiners to the accelerated programs in the medical schools, the board has decided to hold two examinations this winter. The first will be held January 20-22 and the second March 1-3.

Board of Pediatrics Abolishes Group I.—The American Board of Pediatrics, Inc., announces that Group I, physicians who have specialized in pediatrics for ten years or more, will be abolished on July 1. The board wishes to give all physicians who may fall into this group ample warning that the final date for filling applications under this group is nearly up.

Casselberry Awards.—A sum of money is now available from the Casselberry Fund of the American Laryngological Association for a prize award, decoration or grant to be given for original investigation in the art and science of laryngology or rhinology. Theses must be in the hands of the secretary, Dr. Arthur W. Proetz, 1010 Beaumont Medical Building, St. Louis, before March 1.

Southeastern Surgical Assembly Discontinued.—The assemblies of the Southeastern Surgical Congress have been discontinued for the duration of the war or until such time as the executive council decides to continue them again, according to an announcement from Dr. Benjamin T. Beasley, Atlanta, Ga., secretary-treasurer. The publication of the *Southern Surgeon* has also been discontinued for the same period of time or for such time as the executive council considers it advisable to resume publication.

Accidents Compared to War Casualties.—According to the National Safety Council, casualties to the U. S. armed forces from Pearl Harbor to November 15, excluding the African campaign, have been 5,694 dead, 3,435 wounded and 39,827 missing or prisoners, a total of 48,956. These figures are from the government. Casualties to American workers through accidents in the same period have been 44,500 dead and 3,800,000 wounded. These figures are from the National Safety Council. The total American accident toll since Pearl Harbor has been 89,000 killed and approximately 8,800,000 wounded, including thousands of skilled workers.

Northwest Regional Conference Revived.—A meeting was held in St. Paul, November 8, which served as a revival of the old Northwest Regional Conference. Representatives of Wisconsin, Iowa, North and South Dakota and Minnesota attended the session and elected Dr. Raymond G. Arveson, Frederic, Wis., as president and Mr. R. R. Rosell, St. Paul, executive secretary of the Minnesota State Medical Association, as secretary. It was decided to change the name to the North Central Medical Conference from the Northwest Regional Conference and to hold the next meeting in St. Paul. The local conference was revived for the purpose of discussing problems affecting the neighboring states which made up the old Northwest Regional Conference. According to Mr. Rosell, the revival of the conference will not in any way affect the National Conference on Medical Service, which was an outgrowth of the old Northwest conference. No formal papers were presented at the recent meeting. Discussions, which were of the round table type and informal, centered on rationing, medical licensure, law enforcement, medical service plans and state and national legislation.

The Charles L. Mayer Awards Created.—The National Science Fund announces the creation of two $2,000 prizes to be known as the Charles L. Mayer awards and to be presented in 1942 and 1943 for outstanding contributions "to our knowledge of factors affecting the growth of animal cells with particular reference to human cancer." One prize will be awarded for a contribution published in 1942 or submitted to the National Science Fund. A similar prize will be awarded in 1943. A special advisory committee has been appointed consisting of Robert R. Williams, D.Sc., discoverer of vitamin B_1 and chemical director of the Bell Telephone Laboratories, New York; Dr. Alan Gregg, director for the medical sciences of the Rockefeller Foundation, New York; Dr. George H. Whipple, dean of the School of Medicine and Dentistry of the University of Rochester, Rochester, N. Y., and Elihu Root Jr., LL.D., New York. The donor of the Charles L. Mayer Awards had in mind "the vast possibilities offered for research on the action of chemical agents and physical factors in stimulating or retarding cell growth." The National Science Fund will consider studies of factors controlling the growth of protozoa, of animal tissue cultures or of entire organisms as eligible for awards. William J. Robbins, D.Sc., chairman of the National Science Fund of the National Academy of Sciences, stated that the committee is interested primarily in fundamental studies on the factors influencing growth of animal cells rather than applications to any particular aspect of normal or abnormal growth. According to Dr. Robbins, applications based on such studies may develop in the future, but at present we need more knowledge of the essentials concerned. Dr. Robbins stated that the Mayer awards apply to the field of animal cell growth and that the advisory committee will welcome suggestions at once as to outstanding published contributions and manuscripts of 1942 on any phase of this subject. Communications should be sent to the National Science Fund offices, 515 Madison Avenue, New York.

Regional Meeting of College of Physicians.—The regional meeting of the American College of Physicians was held at the Drake Hotel in Chicago, November 21. Among the speakers were:

Dr. Nathan S. Davis, Chicago, Treatment of Arterial Hypertension with Ascorbic Acid.
Dr. Clifford J. Barborka, Chicago, Nutritional Problems in Wartime.
Drs. Carl A. Johnson, Arthur Wilson Smith and Thomas J. Coogan, Chicago, Effect of Altitude on Peripheral Circulation.
Drs. Paul S. Rhoads, Evanston, Ill., and Melvin L. Afrenow, Chicago, Significance of Joint Pains Caused by Sterile Streptococcus Toxin.
Dr. Roscoe L. Sensenich, South Bend, Ind., Maintaining High Standards of Medical Practice with Decreasing Personnel.
Dr. Francis D. Murphy, Milwaukee, Acute Nephritis and the Effect of Sulfonamides on the Kidney.
Dr. Henry H. Turner, Oklahoma City, Persistence of Estrogen Induced Sexual Development.
Major Thomas Donald McCarthy, M. C., U. S. Army, Camp Grant, Ill., Army Casualties, Honolulu, Dec. 7, 1941.
Dr. Lloyd H. Ziegler, Wauwatosa, Wis., Psychoneuroses in Wartime.
Dr. Paul H. Holinger, Chicago, Bronchoscopic Observations in Atypical Pneumonia.
Dr. Archibald L. Hoyne, Advances in the Treatment of Contagious Diseases.
Dr. John S. Coulter, Chicago, Physical Therapy in Civilian Defense.
Dr. Ralph C. Brown, Chicago, Gastrointestinal Disorders in the Armed Forces.
Drs. Carl W. Apfelbach and Ernest E. Irons, Chicago, Aspiration Pneumonia.
Brig. Gen. Charles C. Hillman, M. C., U. S. Army, chief of the professional service division, office of the Surgeon General, Washington, D. C., Rifles on the Firing Line.
Dr. James E. Paullin, Atlanta, Ga., President-Elect of the American Medical Association, Syphilitic Heart Disease.
Dr. Walter M. Boothby, Rochester, Minn., Aviation Medicine.
Capt. Robert E. Duncan, M. C., U. S. Navy, Bethesda, Md., Problems of the Internist in the Navy.
Dr. Paul D. White, Boston, Cardiac Problems in Wartime.
Dr. Warren H. Cole, Chicago, Shock.
Dr. Eric Oldberg, Chicago, Head Injuries.
Col. Fred W. Rankin, M. C., A. U. S., Lexington, Ky., President of the American Medical Association.
Dr. Frank V. Meriwether, Chicago, Functions of the Public Health Service in the Present Emergency.

Special programs were held November 19 and 20 respectively at Camp Grant and the United States Naval Hospital, Great Lakes.

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Foreign Letters

LONDON LETTER

(From Our Regular Correspondent)

Oct. 31, 1942.

The Annual Report of the Minister of Health

The report of the minister of health for the year ended April 1 last has just been published. The health services and the public have had to manage with fewer doctors, dentists and pharmacists and with substitutes for some of the drugs and other supplies to which they are accustomed. But normal and emergency services have been maintained at an official standard and, most important of all, the nation's stubborn good health continues. There has been no major epidemic and no falling away from nutritional standards. Nevertheless the warning is given that the strains of war are necessarily progressive. The people's good health has contributed in no small degree to the war effort. The minister claims that this owes much to the improvements in housing, health and other social services made between 1919 and 1939 and also to all that has been done in those twenty years to educate the public in health matters. Rationing and the Ministry of Food advertisements have created a new interest in a balanced diet and in the methods of preparing and cooking food so that the maximum salts and vitamins will be retained.

After a drop to the record low figure of 2.60 in 1940, maternal mortality rose slightly in 1941 to 2.76, but the rate for infection during childbirth and the puerperium fell to 0.47 per thousand total births, the lowest on record. Infant mortality in its turn rose to 59 per thousand live births, an increase of 3 on the figure of 1940 and of 9 on the record low level of 1939. On the other hand, the stillbirth rate, which in 1938 was 38, declined to 35, again a low record. Further, the infant mortality for the first quarter of 1942 was 61 per thousand live births, the lowest recorded for any first quarter.

Throughout the war years the essential maternity and child welfare services have been well maintained. In the emergency maternity homes, operated under the evacuation scheme (from dangerous areas), 29,520 babies were born. The continuous progress made during the year in arranging for the welfare of evacuées is stated to be due largely to the policy of appointing welfare officers and organizers as field workers.

A Wider Clinical Study of Disease

The quinquennial Dr. Isaac Gilchrist lecture was delivered at the University of Aberdeen by Prof. J. A. Ryle, whose subject was "The Progress and Present Aspects of Medical Science." He made a strong plea for a wider clinical study of disease. The great discoveries of specific microbic agents of disease and specific deficiencies has had, along with their immense benefits, a peculiarly limiting effect on the vision and practice of many physicians, not excepting teachers. These advances had compelled neglect of the associated causal factors without which no disease could exist. In the past quarter of a century the main endeavor of medicine had been to discover new diagnostic methods, and countless improvements and precisions had been due to radiology, chemistry, bacteriology and endoscopy. These prompted a desire for still greater accuracy, with the result that objectivity had often overreached itself, while symptomatology, which should have benefited, suffered neglect.

At the end of the last war we were dominated by the bacterial hypothesis and sought to attribute peptic ulceration and many other diseases to infection originating in some remote focus, such as a tooth socket. At the beginning of the present war a deepening interest in etiology led us on (or back, for the older physicians were much alive to these causal complexities) to the "multiple factor" hypothesis, and the concept of focal sepsis as a main contributor was largely discarded. In the case of duodenal ulcer we are accumulating evidence of the part played by such factors as age, sex, hereditary predisposition, physical type and temperament on the one hand and emotional and occupational stress and tobacco on the other. Under the influence of one or more of the last three factors (which somewhat similarly affect the neuromuscular behavior of the stomach) it may be suggested that there are persons endowed by one or more of the preceding five factors with a heightened susceptibility to the development of the characteristic lesion.

By diagnosis we should imply something much more comprehensive than a descriptive label: a "thorough" knowledge of the case—not merely its momentary morbid anatomy but its living and continuing morbid physiology. At one time, as still holds for skin diseases, nomenclature and classification were the main objective of diagnosis. The nature or physiology of symptoms calls for much closer study. Though rarely taught as such, many represent only an exaggeration or depression of the familiar symptoms of health. All symptoms are specific phenomena, not for a structural change but for a physiologic process or disturbance referable to a variety of changes or stresses. Hunger pain, a symptom of disease, is an exaggeration of normal hunger. Duodenal ulcer is by no means its sole cause. The overobjective physician, too cursory in his analysis of the patient's "disease," tends to associate symptoms and syndromes with fixed patterns of morbid change. Becoming too selective, he often looks for what is not there and is apt to form opinions based rather on the bias of his branch of practice or therapeutic preferences than on a strict analysis of symptoms and of their special significance in the individual. The old errors of our too simple division into "organic" and "functional" disease can be traced to neglect of the principle that the first aim of diagnosis should be to discover the physiology of a symptom or functional error and only then to determine whether it is due to emotion or fatigue, to anemia, to a mechanical irritation, to an inflammation or to an obstructive lesion, any of which alone or in combination may cause it. Immense though its value to medicine, morbid anatomy often tempts us with its standard pictures and more explicit signs to take the wrong path first. Physiologic diagnosis should precede anatomic, pathologic or psychologic diagnosis. The first question should be "What does this symptom mean?" not "What is it a symptom of?" This approach encourages greater accuracy of thought. Declining it, we become liable to the two commonest errors in clinical work—over-reliance on some objective method, such as radiography, and inability to think in terms of function even when confronted with what we are pleased to call functional disease. Thinking in terms of mechanism, infection or chemistry, we are too apt to adopt mechanical or chemical methods —appendectomy for rightsided colon pain or sulfonamide compounds for a fever, when change of habits, reassurance and symptomatic measures would often be better. Overobjectivity in diagnosis leads to excessive "routine investigation," which can be as bad for the mind of the patient as it is for the mind of the physician. The modern "complete investigation" may sometimes be helpful for some obscure condition but should not be regarded as scientific and praiseworthy because it is new.

Increased Underground Shelters Against Air Raids

The London underground railways have been extensively used as shelters against air raids. It is now announced that eight new tunnel shelters of the most modern type in the world have been added. They are 75 to 110 feet below the ground level and will accommodate sixty-four thousand persons. They are provided with canteens, medical aid posts and an examination room. A physician and nurses will be in attendance.

Throat and Nose Manifestations of Blood Diseases

At the Section of Laryngology of the Royal Society of Medicine Mr. W. M. Mollison opened a discussion on the nose and throat manifestations of blood diseases. He chose for consideration bleeding of the newborn, essential thrombocytopenia, or purpura hemorrhagica, polycythemia vera, hemophilia, hereditary telangiectasia, or Osler's disease, agranulocytosis, leukemia, achlorhydric anemia, avitaminosis and glandular fever. Though the first three exhibit bleeding from the nose and gums, in the absence of any local cause it is the pediatrician who takes over the case.

Hemophilia has generally declared itself in the boy before the laryngologist is consulted. All operations are to be avoided. In suspected cases full examination of the blood must be made before any operation. Even a normal clotting and bleeding time do not always save the surgeon from disaster.

Osler's disease is rare but embarrassing. Bleeding occurs simultaneously from skin and mucous membranes, and several members of the family are affected.

Agranulocytosis occurs after ingestion or injection of certain drugs—aminopyrine, sulfonamides, sanocrysin, arsenical compounds and benzene. It is also seen after exposure to high voltage roentgen radiation. Because of inflammation and ulceration of the tonsils, palate and gums the disease has been called agranulocytic angina. It has a very high mortality. The patient is very ill with a high temperature, often out of proportion to the pharyngeal lesions. Death may occur in a few days. There is a chronic form in which treatment leads to temporary improvement in the blood picture. Patients have lived for two years or more. Even slight operations are apt to produce serious relapses with extensive ulceration in the mouth. Rigors produced in the course of the disease lead to enormous leukocytosis with cure. In a recent case a leukocytosis of 40,000 followed a third transfusion, and cure was immediate and permanent.

Leukemia produces severe ulceration of the tonsil and is distinguished from agranulocytosis and other tonsil ulcerations only by blood examination. The prognosis is fatal.

Dysphagia is one of the least frequent symptoms of achlorhydric anemia. Most of the cases occur in the asthenic type of woman, with hair prematurely gray in contrast to the dark eyebrows. The skin is pigmented but not icteric. Anemia is not obvious till a blood count is done. Treatment consists in large doses of iron and ammonium citrate, up to 240 grains (15.5 Gm.) daily. It is successful, but hydrochloric acid never returns to the gastric juice.

In 1919 Brown-Kelly described a symptom complex in women complaining of dysphagia: spasm at the entrance of the esophagus, smooth tongue, fissures at the corners of the mouth and a pale pharyngeal mucous membrane. Esophagoscopy showed a small circular lumen which could be opened easily with much relief. Similarly Paterson described a clinical type of spasmodic dysphagia and/or superficial glossitis. He also noted changes in the mucous membrane which tended to make it crack on passing a tube. The narrow lumen just below the cricoid appeared to be due to spasm of the cricopharyngeus muscles, which led to the suggestion that it could not relax.

Avitaminosis supplies two diseases with nose and throat manifestations: scurvy and rickets. Scurvy usually occurs between the ages of 6 months and 3 years. A hemorrhage over the frontal bone has been misdiagnosed as osteomyelitis. The laryngismus stridulus of rickets may be confused with other causes of stridor.

Glandular fever is characterized by sore throat and enlarged glands, at first cervical, later epitrochlear, axillary, inguinal and mediastinal. The last group produce cough and perhaps stridor. The blood shows a leukocytosis up to 60,000, of which 80 per cent are lymphocytes.

Animal Health and the Food Supply

At the annual conference of the National Veterinary Medical Association Dr. W. R. Woolridge advocated in his presidential address a national animal health service. He said that probably over 60 per cent of dairy cattle were infected with one disease or another and that the figure could not be far in excess for sheep, pigs and poultry. Of all domesticated animals horses were probably the healthiest. A bold and coordinated animal health service would produce a considerable reduction of disease and material lessening of the monetary loss due to disease, which could not be assessed at less than $250,000,000 annually. The task of the veterinary profession could be nothing less than the organization of an efficient service to minister to the welfare of all animals and to improve the quantity, quality and safety of foodstuff of animal origin.

Official committees and other bodies, however, continued to be set up to consider problems without the assistance of proper veterinary representation. The veterinary practitioners should be remunerated by the state. There were about two thousand active veterinary surgeons in Great Britain, but the work awaiting a national animal health service required double that number. He favored the establishment of an animal health corporation with governors appointed by the state.

SWITZERLAND

(From Our Regular Correspondent)

Oct. 15, 1942.

Measures Taken Against Typhus

The Swiss Health Office recently called attention to the necessity of taking measures against typhus. Although the threat is not direct, the possibility exists that the disease is carried into Switzerland by refugees, escaped war prisoners or deserters. The border health service of Switzerland has taken measures with regard to travelers coming from regions in which typhus prevails. Furthermore a strict health control has been ordered for all destitute and homeless persons and for all vagrants. The school children are to be examined periodically for louse infestation. The hygiene institute of the University of Zurich has produced a protective vaccine against typhus. Prophylactic vaccination has been officially recommended for all persons who might come in contact with typhus patients. Since the Russian campaign of 1941, typhus has penetrated from eastern Europe and Poland to Germany and the incidence of the disease has increased in Bulgaria, Rumania and Hungary. Spain, where typhus appeared after the civil war, also had numerous cases of the disease during 1941. The official report of the Swiss Health Office gives the figures here tabulated on the incidence of typhus in different countries. The figures include as a rule only the cases among the civil population.

Incidence of Typhus

Europe:	
Spain from Jan. 26 to Dec. 13, 1941	6,428 cases, 966 deaths
Germany from Dec. 29, 1940 to Dec. 13, 1941	1,962 cases, 282 deaths
Hungary from Jan. 1 to Dec. 27, 1941	598 cases, 16 deaths
Rumania from Jan. 1 to Dec. 31, 1941	1,806 cases
Bulgaria from Dec. 29, 1940 to Dec. 18, 1941	349 cases, 20 deaths
North Africa:	
Algiers from Jan. 1 to Dec. 20, 1941	10,939 cases
Tunisia from Dec. 30, 1940 to Dec. 14, 1941	5,541 cases
French Morocco from Jan. 1 to Dec. 27, 1941	1,728 cases

The Swiss Health Office reports also that the protective measures which were taken during the last war and after the cessa-

tion of hostilities protected Switzerland against typhus, although at that time this disease took a considerable number of victims among the armed forces and civil populations of the belligerent countries. In a few instances the disease nearly reached the Swiss border. The greatest danger of introducing the disease existed during the after war period at the collapse of the battle fronts. From 1914 to 1922 Switzerland had only 4 cases of typhus (1914 and 1920 1 case each, 1922 2 cases).

Foundation for Scholarships

A foundation for scholarships in biologic and medical studies has been set up in Bern. The foundation is under the supervision of the federal council. The stock capital amounts to 120,000 francs. In addition, seventeen scholarships of 5,000 francs each have been pledged annually. The scholarships are to last two or three years; thus the student will have time to show whether he is better suited for academic or economic work. The originators of this foundation are in addition to the Association of Swiss Physicians and the Swiss Society of Chemists, the great chemical and pharmaceutical firms of Switzerland. They hope with this foundation to serve their country and to promote the development of Swiss science. The suggestions for the foundation came from Professor Gigon of Basel and from Professor Muralt of Bern, who is also the president of the new foundation. The foundation is located in Basel.

Professor Gigon has also made suggestions for the establishment of a Swiss academy of the medical and biologic sciences, which is to be supported particularly by the faculty of medicine of Basel. The firm of Sandoz in Basel, on the occasion of the twenty-fifth anniversary of its pharmaceutic department, donated 500,000 francs for the proposed academy.

Control of Medicines in Switzerland

An intercantonal office for the evaluation of medicines has existed in Switzerland for years. Recently the control of pharmaceutic specialties that contain hormones has been decided on in order to protect the public against misrepresentation. The physiologic institute at the University of Lausanne, under Professor Fleisch, has been designated as the only governmental office for the assay of hormones. The intercantonal control office will permit the marketing of hormone preparations by the cantonal health departments only after the institute has issued a certificate. The only governmental assay office for vitamin preparations is the physiologic chemical institute of the University of Basel under Prof. F. Verzar.

Brief Items

The second medical mission of Switzerland to the eastern front departed some time ago from Bern. It consisted of sixty-nine persons, among whom were twenty-eight physicians and twenty-six nurses. The chief surgeon is Dr. Ruppanner, director of the hospital in Samaden.

The insulin supply of Switzerland made it necessary for the federal health office to place restrictions on its sale. A medical certificate with exact statements regarding the need of treatment is necessary in order to obtain insulin.

Personals

Prof. Emil Buergi, head of the department of pharmacology and toxicology and of medical chemistry at the University of Bern, celebrated his seventieth birthday.

Prof. Dr. K. Lenggenhager, director of the surgical clinic of the University of Bern, has been appointed a regular professor.

The head of the department of hygiene at the University of Zurich, Prof. Hermann Mooser, has been called to Barcelona to help combat typhus.

The following appointments were made at the faculty of medicine of the University of Geneva: Prof. Georges de Morsier was made chief of the department of neurology, Prof. Oscar Wyss was appointed head of the department of physiology and Privatdocent Dr. Franz Leuthardt was appointed extraordinary professor of physiologic chemistry.

Prof. Dr. Alfred Labhardt, head of the department of obstetrics and gynecology in Basel and director of the women's hospital in Basel, has retired on account of age.

Prof. Dr. H. W. Maier, for many years head of the department of psychiatry at the University of Zurich, has resigned. Dr. Manfred Bleuler of the psychiatric clinic of Basel, son of the deceased psychiatrist Eugen Bleuler, was appointed as Maier's successor.

Deaths

Dr. Henri Carrière, from 1916 to 1937 director of the federal health office of Switzerland, is dead. He became widely known by his activity in the international office of public health in Paris and as a member of the advisory committee on traffic in opium and other dangerous drugs of the League of Nations in Geneva. He repeatedly was the chairman of this committee.

Prof. Paul Clairmont, who from 1918 to 1941 had the chair of surgery in Zurich, died at the age of 66 of carcinoma of the prostate.

Prof. Carl Dorno died at the age of 77 in Davos. Dorno is regarded as the founder of bioclimatology. With his own means and from personal initiative, he erected in Davos the physical-meteorologic observatory, and he was its director until 1926, when it was combined with the Swiss institute for alpine physiology and tuberculosis. Dorno has made valuable contributions to bioclimatology, particularly by his investigations on the significance of climate and meteorologic conditions.

Prof. Edwin Ramel, head of the department of dermatology in Lausanne, who became known by his investigations in the sphere of cutaneous tuberculosis and cancer, died at the age of 46.

Prof. Dr. Gustav Wolff died in Basel at the age of 76. He had been professor of psychiatry and director of the psychiatric clinic of Basel from 1904 to 1925.

Marriages

EDWIN W. SHEARBURN JR., Charlottesville, Va., to Miss Charlotte Ann Brubaker of Parkersburg, W. Va., in August.

FREDERICK WARREN GOODRICH JR., Catskill, N. Y., to DR. VIRGINIA C. HALL of Marietta, Ohio, in New York, July 9.

OLIVER KENNARD SCOTT, Framingham, Mass., to Miss Deborah Ann Hubbard of Elizabethtown, N. Y., July 4.

ROBERT H. COX, Mount Vernon, Ky., to Miss Bille Henderson Crawford of Knoxville, Tenn., in September.

DWIGHT PARKINSON, Washington, D. C., to Miss Elizabeth Haselden of Montreal, Que., Canada, July 15.

JAMES GIBSON LOGUE JR., Williamsport, Pa., to Miss Camille Jennings Woods in Charlotte, N. C., July 11.

JAMES SLADE RHODES JR., Williamston, N. C., to Miss Jean Cooke Jackson of Charleston, S. C., in July.

HORACE MARTIN GEZON, Grand Rapids, Mich., to Miss Elizabeth Brownlee of Pittsburgh, September 19.

JOHN ROGERS MAPP, Machipongo, Va., to Miss Sara Rebecca Moore of Pageland, S. C., August 21.

CLEMENT STORY DWYER, Boston, to DR. MARGUERITE LOUISE MCKAY, Bar Harbor, Maine, July 2.

WILLIAM WARREN DANIEL, New York, to Miss Susan Jane Perry of Syracuse, N. Y., August 8.

CHARLES BRADLEY NORRIS to Miss William Ernestine Stout, both of Charlotte, N. C., July 11.

JOSEPH EDGAR CROSLAND to Miss Mary Elizabeth Howard, both of Greenville, S. C., in July.

EUGENE B. CANNON, Roanoke Rapids, N. C., to Miss Dee Armfield in Asheboro, August 7.

EUGENE L. LOZNER, New York, to Miss Jean M. Culver in Boston, July 3.

Deaths

Barclay Wellington Moffat ● Red Bank, N. J.; Harvard Medical School, Boston, 1916; formerly assistant professor of clinical orthopedic surgery at the New York Post-Graduate Medical School, Columbia University, New York; specialist certified by the American Board of Orthopaedic Surgery, Inc.; member of the American Orthopaedic Association and the American Academy of Orthopaedic Surgeons; president of the Monmouth County Medical Society; fellow of the American College of Surgeons; served as a captain in the medical corps of the U. S. Army during World War I; medical director of the New Jersey State Commission for Crippled Children; associate attending orthopedic surgeon, New York Post-Graduate Medical School and Hospital, New York; attending orthopedic surgeon, Fitkin Memorial Hospital, Neptune; consultant in orthopedic surgery, Allenwood Sanatorium and Monmouth County Hospital for Tuberculosis, Allenwood, Children's Country Home, Westfield, and the Betty Bacharach Home for Afflicted Children, Longport; aged 52; died, October 28.

William James Swift, Chicago; Rush Medical College, Chicago, 1904; member of the Illinois State Medical Society and the Association of Military Surgeons of the United States; formerly a fellow of the American College of Surgeons; associate in medicine and assistant to the deans at his alma mater from 1906 to 1909; registrar at De Paul University from 1908 to 1911; instructor in operative surgery at the Chicago Policlinic from 1909 to 1915; assistant professor of surgery at the Illinois Post-Graduate Medical School, 1916-1917; assistant professor of surgery from 1919 to 1924 and later associate clinical professor at the Loyola University School of Medicine; was in command of the first Illinois Field Base Hospital during World War I; served as a major in the medical corps of the Illinois National Guard and as commanding officer of the medical detachment of the 124th Field Artillery, 33d division; retired with rank of lieutenant colonel; aged 64; attending surgeon at the Alexian Brothers' Hospital, where he died, November 10, of carcinoma of the esophagus.

David King Smith, Toronto, Ont., Canada; University of Toronto Faculty of Medicine, 1896; specialist certified by the American Board of Dermatology and Syphilology; fellow of the Royal College of Physicians of Canada and of the Royal College of Physicians of London; past president of the Canadian Branch of the British Association of Dermatology and Syphilology; member of the American Dermatological Association; one of the founders of the American Academy of Dermatology; in 1930 was elected president of the Academy of Medicine of Toronto; during World War I served as a lieutenant colonel with the number 4 Canadian General Hospital and later as officer commanding the Davisville Military Hospital; formerly assistant professor of medicine at his alma mater; in charge of the department of skin diseases in the Toronto General Hospital from 1912 to 1923; aged 69; died suddenly, November 3, as the result of a cerebral accident.

Frederick F. Gundrum ● Sacramento, Calif.; Johns Hopkins University School of Medicine, Baltimore, 1908; demonstrator in anatomy at the University of Pittsburgh, 1909-1910; specialist certified by the American Board of Internal Medicine; fellow of the American College of Physicians; president of the California Academy of Medicine in 1937; vice president of the Board of Medical Examiners from 1913 to 1915 and of the California State Board of Health from 1915 to 1932; member, past president and secretary of the Sacramento Society for Medical Improvement; chairman of the medical advisory board number 7 during World War I; director of the North California Branch of the State Laboratory from 1912 to 1915; chief visiting physician at the Sacramento County Hospital from 1910 to 1919; secretary and member of the board of trustees of the Sutter Hospital; aged 61; died, October 23, of a self-inflicted bullet wound.

Joseph Edward Lumbard ● New York; University of Vermont College of Medicine, Burlington, 1889; past president of the Harlem Medical Society, the Valentine Mott Medical Society and the New York Society of Anesthetists; member of the American Society of Anesthetists, Inc., American Association of Anesthetists, the International Anesthesia Research Society, the Associated Anesthetists of the United States and Canada and the New York Academy of Medicine; formerly director of anesthesia at the Harlem Hospital, Memorial Hospital, Lying-in Hospital and the Lutheran Hospital; for many years anesthetist at the Fordham Hospital; at one time taught anesthesia at the Fordham University School of Medicine and the New York University College of Medicine; devised the glass nasal tubes known by his name; aged 77; died, October 27.

J. Brown Loring ● Chicago; McGill University Faculty of Medicine, Montreal, Que., Canada, 1883; M.R.C.S., England, and L.R.C.P., London, 1884; adjunct professor of clinical ophthalmology from 1906 to 1908, professor of clinical ophthalmology from 1908 to 1913 and assistant professor of clinical ophthalmology from 1913 to 1917 at the University of Illinois College of Medicine; member of the American Academy of Ophthalmology and Otolaryngology, the Chicago Ophthalmological Society, Institute of Medicine of Chicago and the Society of Medical History; fellow of the American College of Surgeons; at one time on the staff of the University Hospital; assistant surgeon in the eye department of the Illinois Charitable Eye and Ear Infirmary from 1894 to 1909; aged 81; died, November 6, of cerebral hemorrhage and arteriosclerosis.

James Wiley Bodley ● Memphis, Tenn.; University of Pennsylvania School of Medicine, Philadelphia, 1915; associate professor of surgery at the University of Tennessee College of Medicine; certified by the American Board of Surgery and a member of the founders group of that board; member of the Southeastern Surgical Congress; fellow of the American College of Surgeons; served as a major in the medical corps of the U. S. Army during World War I and as chief surgeon of Base Hospital number 55 overseas; state commander of the American Legion and a brigadier general of the Tennessee State Guard; chief of staff, Baptist Memorial Hospital; attending surgeon, John Gaston Hospital; consultant surgeon, Crippled Children's Hospital School and Hospital for Crippled Adults; aged 53; died suddenly, October 27, of heart disease.

Annie Roche Elliott ● Norristown, Pa.; Woman's Medical College of Pennsylvania, Philadelphia, 1912; associate clinical professor of psychiatry at her alma mater; member of the American Psychiatric Association; specialist certified by the American Board of Psychiatry and Neurology, Inc.; assistant physician from 1913 to 1934, superintendent from 1934 to 1936 and since then assistant superintendent at the Norristown State Hospital; consulting psychiatrist to the Sacred Heart Hospital; aged 55; died, October 30, in the Montgomery Hospital of carcinoma of the breast with metastasis.

Murdock MacGregor ● Dickinson, N. D.; Trinity Medical College, Toronto, Ont., 1897; past president of the North Dakota State Medical Association; past president and secretary of the Cass County Medical Society and the Tri-County Medical Society; fellow of the American College of Surgeons; at one time mayor of Fessenden; formerly attending surgeon, St. John's Hospital, Fargo; at one time associated with the MacGregor, Hanna and Clay Clinic and the Dakota Clinic in Fargo; aged 70; died, September 20, in St. Joseph's Hospital of chronic myocarditis and hypertension.

Rufus B. Stolp ● Kenilworth, Ill.; Chicago Homeopathic Medical College, 1897; specialist certified by the American Board of Internal Medicine; associate in medicine at the Northwestern University Medical School, Chicago; a member of the draft board of the North Shore area during World War I; chief of the emergency medical service of civilian defense of Wilmette; one of the founders and first president of the Kenilworth Historical Society; on the staff of the Evanston (Ill.) Hospital; aged 67; died, November 3, of coronary thrombosis.

Frank H. Clarke, Lexington, Ky.; Medical College of Evansville, Ind., 1875; University of Louisville Medical Department, 1889; member of the Kentucky State Medical Association; at one time superintendent of the Eastern State Hospital; served on the staffs of St. Joseph and the Good Samaritan hospitals; for many years on the staff of the Lexington Clinic; member of the board of trustees of the Sayre School for Girls; aged 89; died, October 27, of arteriosclerotic heart disease.

Frank Julius Herbig, Bay Pines, Fla.; University and Bellevue Hospital Medical College, New York, 1911; for many years physician for the Veterans Administration; chief of the tuberculosis division of the Veterans Administration Facility; served as captain in the medical corps of the U. S. Army during World War I; formerly surgeon, U. S. Public Health Service Reserve; at one time assistant medical director of the Seaview Hospital, Staten Island; aged 65; died, October 26, in Alexandria, Va.

Maurice L. Ripps ● Elizabeth, N. J.; University of Michigan Medical School, Ann Arbor, 1923; specialist certified by the American Board of Pediatrics, Inc.; member of the American Academy of Pediatrics; fellow of the American College of Physicians; assistant attending pediatrician, Elizabeth General Hospital and Dispensary and St. Elizabeth Hospital; consulting pediatrician, Alexian Brothers Hospital; on the staff of the Sea View Hospital, Staten Island, N. Y.; aged 43; died, October 28, in the Neurological Institute of New York, New York, of hematoma of the brain following an exploratory operation.

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Frank Henry Weiss ● Denver; Columbia University College of Physicians and Surgeons, New York, 1901; formerly professor of physiology at the Medico-Chirurgical College of Kansas City, Mo., and professor of pediatrics at the University of Kansas School of Medicine; served on the staffs of the Presbyterian, St. Joseph and St. Anthony hospitals and the Porter Sanitarium and Hospital; aged *67*; died in October.

Fred Robert Hanna, Lapeer, Mich.; Detroit College of Medicine and Surgery, 1931; member of the Michigan State Medical Society and the American Psychiatric Association; served in the U. S. Coast Artillery during World War I; formerly physician of southern Oakland County; medical superintendent of the Lapeer State Home and Training School; aged *42*; died, October *27*, of coronary occlusion.

William Givens Ramsay, McAlester, Okla.; University Medical College of Kansas City, Mo., 1903; member of the Oklahoma State Medical Association; served during World War I; physician in charge of the Oklahoma State Prison Hospital; at one time member of the election board of Pittsburg County; formerly surgeon in chief of the All Saints' Hospital; aged *69*; died recently.

Henry Raymond Ringness ● Lieutenant, M. C., U. S. Navy, Washington, D. C.; George Washington University School of Medicine, Washington, 1939; was commissioned a lieutenant, junior grade, in the U. S. Navy, July 18, 1941 and began active duty Aug. 7, 1941; was promoted to the temporary rank of lieutenant June 15, 1942; aged *30*; was killed on Guadalcanal Island in an airplane battle with the Japanese, October 17.

KILLED IN ACTION

LIEUTENANT HENRY R. RINGNESS, M. C., U. S. NAVY, 1912-1942

Charles A. Nevitt, Lexington, Ky.; Louisville Medical College, 1904; member of the Kentucky State Medical Association; consultant in mental cases to the city police department; at one time physician in charge of the Elmwood Sanitarium; formerly on the staff of the Eastern State Hospital; aged *69*; died, October *27*, in St. Joseph Hospital.

Silas Osborne Barkhurst, Steubenville, Ohio; Western Reserve University Medical Department, Cleveland, 1888; member of the Ohio State Medical Association; formerly member of the board of U. S. Pension Examiners; on the staffs of the Gill Memorial and the Ohio Valley hospitals; aged *79*; died, October *23*, of cerebral arteriosclerosis.

Frank Reynolds, Syracuse, N. Y.; University of the City of New York Medical Department, 1887; member of the Medical Society of the state of New York; for many years a member of the staff of the Crouse-Irving Hospital; formerly on the staff of St. Joseph Hospital; aged *89*; died, October *25*, of chronic myocarditis and arteriosclerosis.

William Martin Sheridan ● Spartanburg, S. C.; Jefferson Medical College of Philadelphia, 1921; specialist certified by the American Board of Radiology, Inc.; member of the Radiological Society of North America, Inc., and the American College of Radiology; on the staff of the Spartanburg General Hospital; aged *46*; died, October *30*.

James B. Lewis, Waynesboro, Ga.; Medical College of the State of South Carolina, Charleston, 1911; member of the Medical Association of Georgia; examining physician for the draft board of Burke County; for many years county physician; aged *54*; died, October *24*, in the University Hospital, Augusta.

Edward Eli Worl, Newark, N. J.; College of Physicians and Surgeons, New York, 1891; superintendent, contagious disease division of the city board of health; formerly superintendent of the Newark City Tuberculosis Sanatorium, Verona; aged *83*; died, October *30*, of myocardial degeneration.

Warren E. Pinner, Camden, N. J.; Jefferson Medical College of Philadelphia, 1928; formerly captain in the medical detachment of the 114th Infantry of the New Jersey National Guard; at one time medical adviser for the schools of Runnemede; aged *41*; was found dead, October *23*.

Henry Stevenson Wailes, Salisbury, Md.; University College of Medicine, Richmond, Va., 1901; for many years surgeon for the Pennsylvania Railroad; formerly on the staff of the Peninsula General Hospital; aged *69*; died, October 16, of hypertensive cardiovascular renal disease.

Ernest L. Mattox ● Terre Haute, Ind.; Rush Medical College, Chicago, 1905; fellow of the American College of Surgeons; aged *62*; on the staff of the Union Hospital, where he died, November 1, of circulatory collapse following an operation for acute intestinal obstruction.

Frank Jackson Crosbie, New Lexington, Ohio; Starling Medical College, Columbus, 1902; member of the Ohio State Medical Association; secretary of the Perry County Medical Society; health officer of Perry County; aged *74*; died, October 17, of coronary thrombosis.

Charles Louis William Rieger ● Philadelphia; Hahnemann Medical College and Hospital of Philadelphia, 1907; associate in roentgenology at his alma mater; aged *63*; on the staff of the Hahnemann Hospital, where he died, October *29*, of coronary heart disease.

Albert Andrew Kohler ● Akron, Ohio; Western Reserve University Medical Department, Cleveland, 1890; health officer of Akron from 1891 to 1893 and from 1896 to 1916; on the staff of the City Hospital; aged *79*; died, October 16, of cardiovascular renal disease.

Francis J. Peter ● Turlock, Calif.; University of Nebraska College of Medicine, Omaha, 1904; formerly clinical instructor in electrotherapeutics and assistant clinical instructor in surgery at his alma mater; on the staff of the Emanuel Hospital; health officer of Turlock; aged *64*; died in October of heart disease.

Napoleon B. Mariner, Belhaven, N. C.; University College of Medicine, Richmond, Va., 1903; member of the Medical Society of the State of North Carolina; formerly served as a member of the school board of Belhaven and as mayor; aged *65*; died, October 16.

Aaron H. Detweiler, Schuylkill Haven, Pa.; Medico-Chirurgical College of Philadelphia, 1902; member of the Medical Society of the State of Pennsylvania; on the associate staff of the Pottsville (Pa.) Hospital; aged *63*; died, October *22*, of arteriosclerosis.

John Charlton Bigony ● Hinton, W. Va.; Ohio State University College of Medicine, Columbus, 1928; served in the U. S. Navy during World War I; Chesapeake and Ohio Railway surgeon; aged *46*; died, October 31, of coronary thrombosis.

Edward Matthias Kennedy ● New Hampton, Iowa; State University of Iowa College of Medicine, Iowa City, 1931; member of the staff of the New Hampton Clinic; aged *36*; died, October 4, in St. Joseph's Hospital of carcinoma of the maxilla.

Zack H. McKinney, Haskell, Ark.; University of Nashville (Tenn.) Medical Department, 1910; member of the Arkansas Medical Society; on the staff of the State Hospital, Benton Division; aged *61*; died, October 16, of cerebral hemorrhage.

James Thomas Henley, Douglasville, Ga.; Atlanta College of Physicians and Surgeons, 1900; commanding officer of Base Hospital number 11 in France during World War I; aged *73*; died, October *27*, of myocarditis and nephritis.

Charles B. Wycoff, Jetmore, Kan.; Kansas Medical College, Medical Department of Washburn College, Topeka, 1911; served as mayor; aged *59*; died, October 9, in St. Anthony's Hospital, Dodge City, of uremia.

Richard S. Smith, Chicago; Howard University College of Medicine, Washington, D. C., 1904; aged *69*; died, November 5, in the Provident Hospital of hypertrophy of the prostate and myocarditis.

John L. Denson, Cameron, Texas; Memphis (Tenn.) Hospital Medical College, 1898; served during World War I; aged *71*; died, October 18, of arteriosclerosis and hypertension.

Edwin Hamill, Chicago; Rush Medical College, Chicago, 1888; member of the Illinois State Medical Society; aged *79*; died, November 14, of angina pectoris.

CORRECTION

Bryan Lee Mitchell.—In the obituary of Dr. Bryan Lee Mitchell, THE JOURNAL, November *28*, page 1055, erroneously reported that Dr. Mitchell was a member of the staff of St. Francis Hospital, Evanston.

Bureau of Investigation

CEASE AND DESIST ORDERS

Abstracts of Certain Federal Trade Commission Releases

The work of the Federal Trade Commission, in helping to protect the public against misrepresentation or fraud in the medical as well as other fields, has been greatly extended by the provisions of the Wheeler-Lea Amendment to the Federal Trade Commission Act. The Food, Drug and Cosmetic Act of 1938 added to the Food and Drug Administration's control of the advertising claims and statements made on the label of a medicine or on the carton or in the accompanying leaflet, whereas what might be termed collateral advertising, that which appears in circulars, newspapers and magazines and over the air, comes more actively under the purview of the Federal Trade Commission by virtue of the Wheeler-Lea Amendment.

THE JOURNAL has at various times commented on the activities of the Federal Trade Commission in this connection, even before the Wheeler-Lea Amendment gave it its added rights. In some cases the Commission may accept from the person or concern involved a stipulation that the objectionable practices or claims cited will be discontinued. In other cases the Commission issues what is known as a Cease and Desist Order, in which the individual, manufacturer or distributor cited is ordered to cease and desist from practices which have been declared objectionable. In some cases the claims cited have been discontinued by the firms several months (or even longer) before the issuance of the order. Abstracts of some of the orders issued in 1942 follow in this form: name of product, name of distributor, date of issuance of complaint, date of issuance of Cease and Desist Order and terms of order.

Dr. Chase's Cushion Comfort and Dr. Chase's Health Shoes.—J. Freidson Shoe Company, Boston; complaint issued Nov. 17, 1941; order issued Aug. 23, 1942. Order prohibited the concern from using the terms "Doctor" or "Dr." or any simulation thereof to describe or refer to shoes not designed or approved by a doctor or otherwise representing in any way that their shoes offer special features which are the results of medical advice; and from using the word "health" or any word of similar meaning to describe shoes which have no special scientific or orthopedic features, or otherwise representing that shoes of customary or usual construction have special health or corrective features.

Merit Short Wave Diathermy.—George S. Mogilner and James Walker, trading as Merit Health Appliance Company, Los Angeles; complaint issued July 26, 1941; order issued Sept. 9, 1942. Order prohibited misrepresentations that unsupervised use of their short wave diathermy device by the lay public for self-diagnosed conditions through self application in the home constitutes a competent and effective means and method for the treatment of numerous ailments, including rheumatism, arthritis, neuritis, and other ailments and for the alleviation of pain resulting from such conditions, and that such use of the device is entirely safe. Order further prohibited any advertising which might fail to reveal clearly that the device is not safe to use unless a competent medical authority has determined, by diagnosis, that the use of diathermy is advisable in the case and has prescribed the frequency and rate of application of the treatments and the user has been adequately instructed in the use of the device by a trained technician.

N-A (also known as N-A No. 7, Vielso and Nature's Aid).—Pat V. James, trading as The N-A Company, Laurel, Miss.; complaint issued Jan. 6, 1942; order issued Aug. 22, 1942. Order prohibited the promoter from representing that his product is a powerful antiseptic or germicide or is other than a mild astringent and antiseptic; that it is unequaled in stopping bleeding or will arrest venous or arterial hemorrhages; that it is a cure for athlete's foot or eczema or has any value in the treatment of such disorders beyond giving relief from itching and irritation; that it is a splendid iron tonic or that its use will prevent lockjaw or blood poisoning; that it is an effective treatment for indigestion, sour stomach, ptomaine poisoning, rheumatism or kidney diseases, or has any substantial value as an internal medicine for the treatment of any bodily disorder. The composition of "N-A No. 7" was reported by government chemists in 1937 to be essentially a solution of iron and magnesium sulfates, water and small amounts of calcium, manganese, aluminum and phosphate. In the same connection this product was declared in a district federal court to be misbranded under the Pure Food and Drugs Act because of fraudulent claims on its label.

Peggie Moran Soaps.—Peggie Moran Company, Inc., Hollywood, selling principally to retail dealers, and Irene Johnston, Inc., beauty parlor operator, Los Angeles; complaint issued Dec. 20, 1940; order issued July 15, 1942. Order prohibited misrepresentations that the soap possesses value in removing excess flesh from the body or from any particular part of it. The Federal Trade Commission found that the soap contained bentonite clay which conceivably might withdraw small amounts of water from the body through the skin but that they would be so small as to be negligible.

Renesol.—The Renesol Corporation, Maurice Goldberg and Charles Goldblatt, Managers, New York; complaint issued Jan. 29, 1939; order issued July 10, 1942. Following the Commission's findings that each "Renesol" capsule contained some bicarbonate of soda and 1 grain of phenobarbital, that the dosage recommended for the treatment was in excess of that advised by the medical profession, that continued use of phenobarbital might develop a craving for the drug and that its employment in excessive amounts might produce toxic psychosis, the order prohibited the Renesol concern from further disseminating any advertisements which failed to reveal that the use of this preparation in excessive doses might result in serious injury to the physical and mental health of the user. The Commission, however, stated that the advertisements need contain only the statement, "Caution: Use only as directed," provided that the directions for use, wherever they appear in the labeling, contain a warning to the same effect; and provided further that such directions for use do not specify a dosage in excess of that recommended in the respondents' directions as revised during the trial of the case. It is worth noting also that earlier (September 1935) the Commission had ordered the Renesol Corporation to discontinue misrepresenting the therapeutic value of this treatment or of any product similarly compounded.

Roberts Blueberry Juice.—Mar-Gel Health Products Corporation, Oak Park, Ill.; complaint issued Oct. 11, 1941; order issued July 19, 1942. Order prohibited advertisements representing that this product has any therapeutic value in the treatment of diabetes, stomach disorders, ulcers, constipation, impaired digestion, acidosis, anemia, arthritis or liver trouble or has any property other than that of a beverage with a food value limited to that provided by blueberries. Order also prohibited representations that this juice contains organic mineral elements in quantities sufficient to supply any mineral deficiency; that it is beneficial to the nerves, particularly those of the heart; that it has properties favorably affecting maintenance of mucus and other gland secretions; or that it will increase energy or possesses properties effective in beautifying the complexion, building bone and teeth or repairing tissue.

Slendoids (or Slendoids Nu-Form Capsules).—Gene Hughes Drug Stores and Eugene P. Hughes, President, both trading as Sacramento Pharmacal Company, Sacramento, Calif.; complaint issued Sept. 22, 1940; order issued July 12, 1942. The Federal Trade Commission, on finding that this treatment will not remove excess fat without producing harmful effects, ordered the Hughes interests to cease disseminating any advertisements which represented that their preparation is a cure or remedy for obesity or a safe, competent or effective treatment for that condition; or that its use will tone up the entire system, turn fat into energy and relieve the body of excess fat without harmful results.

Sulfuraid-2I.—Baer Laboratories, Inc., New York; complaint issued Feb. 2, 1942; order issued Sept. 22, 1942. Order prohibited misrepresentations that "Sulfur in *solution* which hitherto defied man's efforts to produce is now an accomplished fact"; that "Sulfur water assuages all kinds of pain, except headaches, regardless of the cause or origin. They not only stop muscular, articular and ligamental pain, but pain due to rupture of muscles, contusions, neuralgia, tubes and tumors"; that "Sulfuraid-2I" is a cure for many forms of rheumatism and nervous exhaustion; that through the use of Sulfuraid-2I in hot water baths sulfur is absorbed from the water through the skin and mucous membranes and has a general medicinal effect on the body; that the addition of this product to hot water quickens perspiration and rapid elimination of bodily waste and helps to counteract acidity; or that this product is the first successful effort to create sulfur in solution or, when used in hot baths, has any therapeutic effect on diseased conditions of the body.

United Short Wave Diathermy.—United Diathermy, Inc., New York; complaint issued Feb. 4, 1941; order issued July 24, 1942. Order prohibited the following misrepresentations: that the device in question (essentially a portable cabinet containing means for generation of electrical short waves and their application to parts of the human body by means of insulated electrodes) is safe or harmless or has any value in treating arthritis characterized by an infection, bursitis in acute stages, sinus trouble in which there is a retention of pus, or any disease or condition involving an acute inflammatory process; that it is an effective treatment for rheumatism, arthritis, neuritis and similar ailments, unless these are limited in the advertising to those disorders which do not involve acute inflammatory processes. The concern was further ordered to discontinue any advertising which failed to reveal clearly that its device is not safe to use unless a competent medical authority has determined by diagnosis that diathermy is advisable and has prescribed the frequency and rate of application of such treatments and a trained technician has adequately instructed the user how to employ the device. The Commission emphasized that the unskilful use of any such mechanism might burn or otherwise seriously injure the person to whom it is applied and, in cases of advanced blood vessel changes of the legs, might, in excess dosage, not only cause serious burns but lead directly to gangrene and necessitate amputation of the leg.

Willat Method of Heatless Permanent Waving.—Irvin A. Willat, trading as Heatless Permanent Wave Company, San Francisco; complaint issued Jan. 7, 1942; order issued Sept. 27, 1942. Order prohibited misrepresentations that any method of heatless permanent waving which includes the use of a curling solution of ammonium hydrogen sulfide constitutes a competent or scientific means of producing permanent waves or that such use will have no ill effects on the body; or any advertisement which fails to reveal that use of such type of curling solution may cause local skin irritation, nausea or vomiting, convulsions, asphyxiation or collapse in the absence of ventilation and which, if introduced into the circulatory system in sufficient quantities and strength, may result in systemic poisoning and death.

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Correspondence

"THE ROLE OF PHYSICAL THERAPY IN THE EARLY TREATMENT OF POLIOMYELITIS"

To the Editor:—In the article of Dr. H. R. McCarroll entitled "The Role of Physical Therapy in the Early Treatment of Poliomyelitis" (THE JOURNAL, October 17, p. 517) statistics are cited purporting to show that no treatment is better than any treatment in the care of this disease. When he attempts to include the Kenny work in his generalizations Dr. McCarroll is drawing conclusions which are not based on facts known to him. Dr. McCarroll admits that "in this study there have been no cases treated by the Sister Kenny method."

Dr. McCarroll says "It has been my privilege to visit briefly the various hospitals in Minneapolis and see some of the cases treated under Sister Kenny's supervision." The actual personal acquaintance of Dr. McCarroll with Sister Kenny extended over a period of approximately two hours. During this brief time it would obviously have been impossible even for Miss Kenny to demonstrate, much less prove, her contention that the true symptoms of the disease of poliomyelitis had not been recognized previous to her work. As a matter of fact, Dr. McCarroll has completely missed this main point of his visit. Miss Kenny's discovery is definitely not that there is a cure or even a treatment for the paralysis of poliomyelitis but rather that there are muscle conditions which are far more damaging to the bodily mechanics if unrecognized and untreated than is paralysis. Dr. McCarroll could not possibly have found a satisfactory treatment for the disease of poliomyelitis if he has neglected to acquaint himself with the true symptoms of the disease.

Miss Kenny has decisively proved her point to those who have taken the time during the past two and one-half years to observe her work. Miss Kenny has brought to us the only physical therapy which could have been effective in treating the disease of poliomyelitis, since it is based on the symptoms which she alone discovered. Miss Kenny would be the first to deny that she claims any cure for paralysis. The patients in her hands and those of her trained assistants do, however, have remarkably little disability following treatment in spite of paralysis.

JOHN F. POHL, M.D., Minneapolis.

SERUM SICKNESS AND ANAPHYLAXIS

To the Editor:—The editorial "Serum Sickness and Anaphylaxis in Man" in the October 17 issue prompts the following comment:

You quote: "Kojis believes in the prophylactic value of routine administration of 5 minims (0.3 cc.) of a 1:1,000 solution of epinephrine to every patient before serum is given regardless of his state of sensitivity." This is insufficient because of the evanescent action of epinephrine, which wears off within a few hours. How will the patient be protected against the delayed reactions and dangers?

In Queries and Minor Notes in THE JOURNAL, Oct. 31, 1936 you published a communication from me on the same subject. In my comment then, which holds good today, I wrote that epinephrine alone injected prior to a serum injection is insufficient as a complete preventive for serum sickness because of its short duration of action. In addition, my procedure has been to administer orally an ephedrine and phenobarbital combination two hours after the epinephrine injection, repeating this combination every three to four hours for three to five days, depending on the case. This routine then controls the later disturbances of the serum. Certainly inject epinephrine fifteen minutes before the serum for the immediate danger, but fortify your patient with the ephedrine combination for the later dangers.

DAVID LOUIS ENGELSHER, M.D., New York.

EXPERIMENTAL CIRRHOSIS OF THE LIVER

To the Editor:—We wish to express our appreciation for the recent editorial mention (THE JOURNAL, October 24, p. 624) of our studies on experimental cirrhosis of the liver. From this editorial, however, those who are not familiar with the study might infer that the detailed analysis of the dietary factors involved in the pathogenesis of this disease should be credited exclusively to our work. In order to avoid any possible misrepresentation we would like to call attention to the fact that although chronologically later, but certainly in independent investigations, several other groups of authors reached conclusions similar to those discussed in the editorial.

The entire group of relevant papers is as follows:

György, Paul, and Goldblatt, Harry: *Proc. Soc. Exper. Biol. & Med.* **46**: 492 (March) 1941.
Webster, Graham: *J. Clin. Investigation* **20**: 440 (May) 1941.
Blumberg, Harold, and McCollum, E. V.: *Science* **93**: 598 (June 20) 1941.
Lillie, R. D.; Daft, F. S., and Sebrell, W. H.: *Pub. Health Rep.* **56**: 1255 (June) 1941.
Daft, F. S.; Sebrell, W. H., and Lillie, R. D.: *Proc. Soc. Exper. Biol. & Med.* **48**: 228 (Oct.) 1941.

PAUL GYÖRGY, M.D.
HARRY GOLDBLATT, M.D.
Cleveland.

KERATOCONJUNCTIVITIS

To the Editor:—With regard to the editorial comment in THE JOURNAL, October 17, on the epidemic of keratoconjunctivitis which has been particularly prevalent on the Pacific coast, I should like to add that in my hands a 4 or 5 per cent solution of sodium sulfathiazole sesquihydrate has been almost specific. In the County Hospital here in San Diego many cases have been treated with this drug most successfully. As it is spreading over the nation it occurs to me that many men will try the ordinary treatment of "pink eye," which I first tried with most unsatisfactory results. Of my office patients (and I have had many) few have had to return after the first prescription, but I do suggest that it be continued for at least five days after all symptoms have disappeared else there may be a return, though in a somewhat milder form.

F. J. WALTER, M.D., San Diego, Calif.

PULMONARY ATELECTASIS

To the Editor:—Referring to Dr. de Takats' article in THE JOURNAL, October 31, regarding pulmonary atelectasis, it is noted that there is some difference of opinion as to the desirability of using atropine for fear of its influence in diminishing and thickening the bronchial secretion, though it is agreed that its antispasmodic effect is desirable. Older clinicians know of Delafield's "emphysema mixture." Dr. Delafield knew how to overcome the undesirable atropine effect while making use of the desirable antispasmodic effect. He included in his mixture potassium iodide, which has the effect of thinning the sticky mucus, thus promoting excretion, combined with relaxation by atropine. Potassium iodide is promptly excreted through the bronchi; and, when necessary, may be given intravenously.

MAXIMILIAN SCHULMAN, M.D., New York.

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

ANNUAL CONGRESS ON MEDICAL EDUCATION AND LICENSURE

CHICAGO, Feb. 15, 1943. Sec., Council on Medical Education and Hospitals, Dr. H. G. Weiskotten, 535 North Dearborn Street, Chicago.

BOARDS OF MEDICAL EXAMINERS
BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Examinations of boards of medical examiners and boards of examiners in the basic sciences were published in THE JOURNAL, Nov. 28, page 1038.

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS: Part III. Chicago, Jan. 5-7. Exec. Sec., Mr. Everett S. Elwood, 225 S. Fifteenth St., Philadelphia.

EXAMINING BOARDS IN SPECIALTIES

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY: *Oral.* Chicago, Dec. 4-5. Sec., Dr. C. Guy Lane, 416 Marlboro St., Boston.

AMERICAN BOARD OF INTERNAL MEDICINE: *Written.* Feb. 15. Final date for filing application is Jan. 1. Asst. Sec., Dr. William A. Werrell, 1301 University Ave., Madison, Wis.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: *Written. Part I.* Various centers, Feb. 13. Candidates in military service may take Part I at their place of duty. *Oral. Part II.* Pittsburgh, May 19-25. Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh.

AMERICAN BOARD OF OPHTHALMOLOGY: *Oral.* June. Sec., Dr. John Green, 6830 Waterman Ave., St. Louis.

AMERICAN BOARD OF OTOLARYNGOLOGY: *Oral.* New York, May or June. Final date for filing application is March 1. Sec., Dr. Dean M. Lierle, 1500 Medical Arts Bldg., Omaha, Neb.

AMERICAN BOARD OF PEDIATRICS: *Oral.* New York, April 24-25. Final date for filing application is Jan. 1. Sec., Dr. C. A. Aldrich, 707 Fullerton Ave., Chicago.

AMERICAN BOARD OF PSYCHIATRY & NEUROLOGY: Detroit, prior to the meeting of the American Psychiatric Association. Final date for filing application is March 1. Sec., Dr. Walter Freeman, 1028 Connecticut Ave., N.W., Washington, D. C.

AMERICAN BOARD OF UROLOGY: Chicago, Feb. 12-14. Sec., Dr. Gilbert, J. Thomas, 1409 Willow St., Minneapolis.

Oklahoma June Report

The Oklahoma State Board of Medical Examiners reports the written examination for medical licensure held at Oklahoma City, June 3-4, 1942. The examination covered 12 subjects and included 120 questions. An average of 75 per cent was required to pass. Fifty-three candidates were examined, all of whom passed. The following schools were represented:

School	PASSED	Year Grad.	Number Passed
Rush Medical College		(1941)	1
University of Oklahoma School of Medicine		(1942, 52)*	52

* Licenses have not been issued.

Washington August Report

The Washington State Board of Medical Examiners reports the written examination for medical licensure held at Seattle, Aug. 3-5, 1942. The examination covered 7 subjects and included 70 questions. An average of 60 per cent in each subject was required to pass. Five candidates were examined, all of whom passed. Fourteen physicians were licensed to practice medicine by reciprocity and 2 physicians so licensed on endorsement of credentials of the National Board of Medical Examiners. The following schools were represented:

School	PASSED	Year Grad.	Number Passed
University of Southern California Medical School		(1942)	1
Rush Medical College		(1941)	1
Indiana University School of Medicine		(1940)*	1
Harvard Medical School		(1941)*	1
McGill University Faculty of Medicine		(1940)*	1

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
College of Medical Evangelists		(1941)	California, Oregon
Stanford University School of Medicine		(1941)	California
Rush Medical College		(1939)	Wisconsin
Harvard Medical School		(1938)	Ohio
St. Louis University School of Medicine		(1941)	Missouri
Washington University School of Medicine		(1936), (1941)	Missouri
University of Nebraska College of Medicine		(1936)	Minnesota
University of Oregon Medical School		(1924), (1941)	Oregon
Hahnemann Medical College and Hospital of Philadelphia		(1939)	Penna.
Vanderbilt University School of Medicine		(1934)	Tennessee
University of Wisconsin Medical School		(1936)	Wisconsin

School	LICENSED BY ENDORSEMENT	Year Grad.
Columbia University College of Physicians and Surgeons		(1939)
Long Island College of Medicine		(1939)

* Licenses have not been issued.

West Virginia July Report

The Public Health Council of West Virginia reports the oral and written examination for medical licensure held at Charleston, July 6-8, 1942. The examination covered 11 subjects and included 110 questions. An average of 80 per cent was required to pass. Twenty candidates were examined, all of whom passed. Sixteen physicians were licensed to practice medicine by reciprocity and 1 physician so licensed on endorsement of credentials of the National Board of Medical Examiners. The following schools were represented:

School	PASSED	Year Grad.	Number Passed
George Washington University School of Medicine		(1941)	1
Howard University College of Medicine		(1941)	1
Northwestern University Medical School		(1942)	1
University of Louisville School of Medicine		(1941)	1
University of Maryland School of Medicine and College of Physicians and Surgeons		(1940), (1941, 5)	6
Harvard Medical School		(1941)	1
Jefferson Medical College of Philadelphia		(1941)	1
Temple University School of Medicine		(1941)	1
University of Pennsylvania School of Medicine		(1941)	1
Medical College of Virginia		(1939), (1941, 3)	4
University of Virginia Department of Medicine		(1933)	1
McGill University Faculty of Medicine		(1940)	1

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
University of Louisville School of Medicine		(1930) (1932)	Louisiana, Kentucky
Tulane University of Louisiana School of Medicine		(1934)	Mississippi
Johns Hopkins University School of Medicine		(1934)	Maryland
Washington University School of Medicine		(1941)	Missouri
Ohio State University College of Medicine		(1923), (1937), (1939)	Ohio
Western Reserve University School of Medicine		(1939)	Ohio
Jefferson Medical College of Philadelphia		(1929)	Penna.
Vanderbilt University School of Medicine		(1941)	Tennessee
Baylor University College of Medicine		(1936)	Texas
Medical College of Virginia		(1933), (1941, 2)	Virginia
McGill University Faculty of Medicine		(1940)	Tennessee

School	LICENSED BY ENDORSEMENT	Year Grad.
New York University College of Medicine		(1937)

Rhode Island Report

The Rhode Island Board of Examiners in Medicine reports the written examination for medical licensure held at Providence, July 2-3, 1942. The examination covered 10 subjects and included 68 questions. An average of 80 per cent was required to pass. Twelve candidates were examined, all of whom passed. The following schools were represented:

School	PASSED	Year Grad.	Number Passed
Georgetown University School of Medicine		(1941), (1941)*	2
The School of Medicine of the Division of the Biological Sciences		(1935)	1
Johns Hopkins University School of Medicine		(1939)	1
University and Bellevue Hospital Medical College		(1923)	1
Hahnemann Medical College and Hospital of Philadelphia		(1941, 2)	2
Jefferson Medical College of Philadelphia		(1940)	1
University of Pittsburgh School of Medicine		(1926)	1
Vanderbilt University School of Medicine		(1941)*	1
Marquette University School of Medicine		(1938)	1
University of Montreal Faculty of Medicine		(1939)	1

One physician was licensed to practice medicine on endorsement of credentials of the National Board of Medical Examiners on August 12. The following school was represented:

School	LICENSED BY ENDORSEMENT	Year Grad.
Tufts College Medical School		(1941)

* Licenses have not been issued.

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Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Medical Practice Acts: Revocation of License for Gross Immorality and Malpractice.—The defendant physician was born in Hungary and in 1926 was graduated from the University of Leipzig with a degree of Doctor of Medicine. He came to this country, received his "first papers" under the naturalization laws in 1931 and was licensed to practice medicine in West Virginia the following year. He was thereafter employed by the superintendent of the Huntington State Hospital and in 1935 went to Williamson, where he practiced his profession, associated with the Mercy Hospital. Subsequently the plaintiff, Mingo County Medical Society, Inc., instituted a statutory proceeding before the West Virginia Public Health Council to revoke the defendant's license. The council found the defendant guilty of gross immorality and malpractice and revoked his license. The circuit court affirmed the order and the defendant appealed to the Supreme Court of Appeals of West Virginia.

The charges on which the defendant was found guilty were, in substance, that in July 1936 he testified before the Public Health Council, in a hearing on charges against him for professional misconduct, that he was a naturalized citizen of the United States when in fact he was not; that after an action for malpractice brought against him in the circuit court of Mingo County the action was continued generally after the defendant presented to the court a purported affidavit of the patient stating that the action was without foundation and releasing the defendant from all liability in connection therewith in consideration of the payment of $150, when in fact the patient neither executed the affidavit nor received the money; that in a proceeding to subject debts owing to the defendant to the lien of an execution on a judgment against him he approached one of his debtors and requested him to testify under oath that the debt had been fully paid, and that when the defendant operated the Mercy Hospital he proposed an agreement to another physician by which such other physician would receive a percentage of fees obtained from patients he referred to the hospital. In addition, the council also found the defendant guilty of malpractice in that he treated a patient for a fracture so negligently, ignorantly and improperly that the patient will not recover from the injury.

The court could find nothing in the record to warrant disturbing the council's findings on the factual question as to malpractice, though the showing might be insufficient in a civil action for malpractice by a patient against his physician. A finding of malpractice, on conflicting evidence, by a board composed of physicians should be entitled to peculiar weight, the court said. As to the matter of gross immorality, the court believed that the finding on that question was entitled to the same weight as that on the question of malpractice. "Gross immorality," the court pointed out, should be measured by the standards of each profession, and in the medical profession, where the standards should admittedly be of the highest, where the lives of persons may depend on the integrity and honesty of the physician, the council was especially well fitted to determine what facts establish gross immorality.

The defendant contended that the charges on which he was found guilty did not mention "gross immorality" or "malpractice" but merely set out isolated and unconnected incidents. But, said the court, the Public Health Council in its findings and the circuit court in its affirmance referred to gross immorality and malpractice "as charged in the complaint." The defendant claimed, however, that he should have been furnished with a statement specifically charging him with gross immorality and malpractice. While it would no doubt have been better pleading to have alleged by way of conclusion that the charges constituted gross immorality and malpractice, said the court, that omission was not fatal. Charges before administrative boards need not be stated with the technical nicety or formal exactness required of pleadings in court. Each of the charges against the defendant contained a statement of the facts on which the plaintiff expected to rely. The defendant was thereby fully informed of the charges against him and was served with "a statement of the charges" as required by the medical practice act.

The law provides that one member of the council shall be a dentist and two members chiropractors. The defendant complained because these three members were excluded from the hearing. It is only necessary to read carefully the statute, the court said, to see that the duties of the dentist and chiropractors as members of the council do not relate to the regulation of the practice of medicine. The defendant also pointed out that the provisions of law authorizing the revocation of a license are penal in nature and should be strictly construed and that therefore, when the law provides that the license of a person who is "guilty of a felony or gross immorality" may be revoked, a finding of such guilt by a court or tribunal is a prerequisite to a hearing before the Public Health Council. As far as the conviction of a felony was concerned, the court agreed with the defendant's contention but pointed out that in the absence of a statutory definition of gross immorality the council could determine for itself, under the standards of the medical profession, whether a person has been guilty of such an offense.

The court therefore affirmed the judgment of the circuit court upholding the revocation order.—*Mingo County Medical Soc., Inc. v. Simon, 20 S. E. (2d) 807 (W. Va., 1942).*

Pharmacy Practice Acts: Physician Who Compounds Drugs for Patients Does Not Operate a Pharmacy.—In 1934 the plaintiff, Medico-Dental Building Company, leased the ground floor of its building to the defendant to conduct a drug store. The lease provided that the plaintiff would not, during the life of such agreement, lease any other portion of its building "for the purpose of maintaining a drug store or selling drugs or ampoules." In 1937 the plaintiff leased an entire floor of the building to a physician who headed a group consisting of six or eight doctors. This lease provided that the premises were to be used solely as offices for the practice of medicine and dentistry. The lessee agreed that he would not "maintain therein or thereon, nor permit to be maintained therein or thereon, a drug store or drug dispensary, nor will lessee compound or dispense, or permit to be compounded or dispensed, drugs or ampoules except in connection with the regular course of treatment of lessee's own patients." Subsequently the physicians employed a pharmacist and began purchasing drugs which were dispensed to patients of the group. Contending that this action constituted a violation of the promise made by the plaintiff, the defendant drug company vacated the premises which it had leased and the plaintiff thereupon filed suit for rent due. The trial court entered judgment for the defendant, and the plaintiff appealed to the district court of appeal, second district, division 3, California.

The trial court found that the plaintiff leased space to the physician "for the purpose of maintaining a drug store and selling drugs." This finding, said the appellate court, was not supported by the evidence. The space was not leased for the purpose of maintaining therein a drug store. Its use for that purpose was expressly prohibited in positive language. The physician was given implied permission to compound and dispense drugs and ampoules in connection with the regular course of treatment of his own patients. Throughout the trial it was assumed that a physician who furnishes medicines to his patients is thereby conducting a drug store. That this is not true, said the court, is of common knowledge. The trial court also found that in his lease the physician was given permission to compound and "sell" drugs. Assuming, said the appellate court, that in a purely technical sense "selling" means every disposition except giving away without charge, direct or indirect, the compounding and dispensing of medicines and ampoules by a physi-

cian to his own patients in the course of treatment did not constitute the sale of drugs which was prohibited by the defendant's lease. In that lease it must have been the intention, said the court, to prohibit the carrying on of the business of selling drugs but not to prohibit those practices which as a matter of law, under their professional licenses, could be followed by physicians as such. Furthermore, said the court, the defendant drug company was in no position to complain. It knew of the activities engaged in by the group of physicians for several months during which it sold to the physicians the drugs they were dispensing to patients. The defendant's executives, observed the court, were not so naive as to believe that the physicians during the several months in question were purchasing large quantities of medicines and giving them away to their patients, for such is not the common practice among physicians. Equally significant was defendant's silence with respect to registering a complaint with the plaintiff until there arose some controversy over the amount of rent. The plainest principles of equity, concluded the court, precluded defendant from taking advantage of a situation which by its silence and acquiescence it encouraged.

The judgment in favor of the defendant was therefore reversed. —*Medico-Dental Bldg. Co. of Los Angeles v. Horton & Converse, 124 P. (2d) 56 (Calif., 1942).*

Paternity: Admissibility of Results of Blood Grouping Tests.—The parties to this proceeding separated in September 1940. Twelve months later the defendant wife gave birth to a son. The plaintiff husband then filed suit for divorce on the ground of adultery, alleging that he was not the father of the baby born in 1941. The case was heard in the supreme court, Monroe County, New York.

At the trial the plaintiff denied having had sexual intercourse with the defendant after the separation in 1940. The defendant, on the other hand, testified to the contrary. During the pendency of this action, the plaintiff was granted an order, under section 306-a of the Civil Practice Act, requiring the defendant to submit the child to a physician appointed by the court, who made a blood grouping test of the blood of the child and the plaintiff. The physician testified as to his qualifications and experience and as to the advance of medical science in this field and then stated that, from the examination of blood which he made, the plaintiff could not possibly have been the father of the child born to the defendant in 1941.

To deny to the plaintiff a decree in this action, the court said, would be tantamount to a holding either that the testimony of the physician was not worthy of belief or that the procedure for a blood test authorized by the Civil Practice Act is futile so far as having any probative value is concerned. No testimony was offered to impeach the physician's credibility or his ability and standing as a physician. He was selected by the court as a physician of experience qualified to make the tests.

In view of the circumstances of the case, the court felt justified in giving the testimony of the physician full weight. Accordingly, the defendant's motion to strike out the testimony of the physician was denied and the plaintiff's prayer for absolute divorce was granted.—*Schulze v. Schulze, 35 N. Y. S. (2d) 218 (N. Y., 1942).*

Workmen's Compensation Acts: Right of Employer to Require Employee to Take Medication in Connection with Physical Examination.—The claimant, while in the course of his employment, was cranking a gasoline engine when the crank slipped and struck him on the base of the nose, a fracture resulting. Following the injury he suffered sphenoidal sinusitis, continuous headaches and an elevated temperature. For these injuries he was awarded compensation under the workmen's compensation act of Louisiana and this award was affirmed by the court of appeal. In that affirming opinion the court found that the claimant was suffering from sinusitis which was progressive and had grown worse since the injury; that laboratory tests made by physicians attending the claimant indicated the presence of malaria; that following such findings he was given 200 grains (13 Gm.) of quinine and an antimalarial preparation known as atabrine; that, although this treatment usually eradicates malaria, the claimant's fever persisted, and that complete relief from the sinusitis could never be obtained without the claimant's undergoing a major operation. Subsequently the defendants, the employer and its insurance company, filed a petition stating that the claimant had refused to undergo a course of quinine medication to determine whether or not his fever was caused by malaria. They asked the issuance of a rule requiring the claimant to show cause why compensation payments should not be terminated until such time as he submitted to a thorough and general malaria examination. The rule issued, the claimant excepted thereto, the trial court sustained the exception and the defendants appealed to the court of appeal of Louisiana.

The workmen's compensation act of Louisiana provides that an injured employee must submit himself, as often as may be reasonably necessary during the pendency of his claim for compensation or during the time he is receiving payments of compensation, to examination by a qualified medical practitioner furnished and paid for by the employer. This requirement, the court pointed out, relates only to an examination; it does not require that the claimant submit himself for treatment, the theory being that the claimant has a right to be treated by a physician of his own choosing and not by a physician of his employer's choice. The claimant had previously submitted himself to an examination at the defendants' request. At that time an eye, ear, nose and throat specialist carefully examined him for sinus trouble, the condition which the court found to exist and on which its award was made. The specialist's report negatived any kind of sinus trouble. Less than a month later the claimant again, also at the request of the defendants, presented himself for an examination and was hospitalized for two days. After other examinations were made the examining physician decided to try a course of quinine for the purpose of finding out whether such course of treatment would not reduce the fever. The claimant was within his rights in refusing to take the quinine, said the court. If it were held otherwise, there would be no end to what could be done under the guise of an examination. There are, for instance, tests and examinations which disclose tuberculosis. Under the defendants' contention, however, if such tests had been made and showed negative results, they would still have the right to confine the claimant in a tuberculosis sanatorium and force him to take treatment for tuberculosis. Malaria is not the only cause of fever, and if the claimant were required to take treatment for every disease that causes fever his treatment would never end until his own end came. The judgment of the lower court for the claimant was affirmed.—*Delafield v. Maples, 6 So. (2d) 41 (La., 1942).*

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Society Proceedings

COMING MEETINGS

American Academy of Orthopaedic Surgeons, Chicago, Jan. 17-21. Dr. Myron O. Henry, 825 Nicollet Ave., Minneapolis, Acting Secretary.

American Society of Anesthetists, New York, Dec. 10. Dr. Paul M. Wood, 745 Fifth Ave., New York, Secretary.

Annual Forum on Allergy, Cleveland, Jan. 9-10. Dr. Jonathan Forman, 956 Bryden Road, Columbus, Ohio.

Clinical Orthopaedic Society, Chicago, Jan. 18-21. Dr. Myron O. Henry, 825 Nicollet Ave., Minneapolis, Secretary.

Eastern Section, American Laryngological, Rhinological and Otological Society, Hartford, Conn., Jan. 15. Dr. Edward J. Whalen, 750 Main St., Hartford, Conn., Chairman.

Middle Section, American Laryngological, Rhinological and Otological Society, Detroit, Jan. 20. Dr. Voss Harrell, 2539 Woodward Ave., Detroit, Chairman.

Puerto Rico, Medical Association of, Santurce, Dec. 11-13. Dr. E. Martinez Rivera, P. O. Box 3866, Santurce, Secretary.

Society of American Bacteriologists, Columbus, Ohio, Dec. 28-30. Dr. W. B. Sarles, Agricultural Hall, University of Wisconsin, Madison, Wis., Secretary.

Southern Section, American Laryngological, Rhinological and Otological Society, Chattanooga, Tenn., Jan. 28. Dr. Francis B. Blackmar, 1301 Broadway, Columbus, Ohio, Chairman.

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1932 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

Alabama State Medical Assn. Journal, Montgomery

12:73-100 (Sept.) 1942

Peptic Ulcer: Analysis of 188 Cases, with Special Reference to Hemorrhage. J. O. Finney, Gadsden.—p. 73.
Blood and Blood Substitutes in Hemorrhage and Shock. H. B. Burdeshaw, Dothan.—p. 79.
Primary Dysmenorrhea. Louise Branscomb, Birmingham.—p. 81.
Carcinoma of Body of Uterus. C. L. Rutherford, Mobile.—p. 86.

American Heart Journal, St. Louis

24:289-434 (Sept.) 1942

*Changes in Size of Heart in Children with Rheumatic Fever. J. D. Keith and Miriam Brick, Toronto, Canada.—p. 289.
Lutembacher's Syndrome and New Concept of Dynamics of Interatrial Septal Defect. M. H. Uhley, Milwaukee.—p. 315.
Effect of Chronic Lead Poisoning on Arterial Blood Pressure in Dogs. P. J. Fouts and I. H. Page, Indianapolis.—p. 329.
Segmental and Aging Variations of Reactive Hyperemia in Human Skin. J. R. DiPalma and Frances I. Foster, Brooklyn.—p. 332.
Reactive Hyperemia Ring Test in Study, Evaluation and Prognosis of Pedal Lesions Caused by Arteriosclerosis Obliterans and Arterial Embolism. J. R. DiPalma, I. Muss and Frances I. Foster, Brooklyn. —p. 345.
Cardiovascular Effects of Desoxycorticosterone Acetate in Man. W. Raab, Burlington, Vt.—p. 365.
Augmented Left and Right Arm and Left Leg Leads: Simplification of Standard Lead Electrocardiography. E. Goldberger, New York.—p. 378.
Treatment of Edema with Orally Administered Mercurial Diuretic. J. F. Borg, St. Paul.—p. 397.
*Sudden Death of a Rugby International After Test Game. E. H. Cluver and E. Jokl, Johannesburg, South Africa.—p. 405.

Heart Size in Children with Rheumatic Fever.—Keith and Brick determined the changes in the size of the heart of 100 rheumatic children by comparing successive roentgenograms of the heart of the patient taken at various stages of a single attack of the disease. From two to twelve roentgenograms of the heart were taken of each patient. Ninety-six of the patients had rheumatic myocarditis, endocarditis or pericarditis, and 4 had doubtful signs of heart involvement. The surface area of the heart on admission was compared with that when progressive changes had ceased: the hearts of 33 became larger, of 18 remained unchanged and of 49 became smaller. Cross hatching, which indicates pericarditis with effusion, produced the greatest change in the size of the heart shadow. Acute dilatation with a dramatic change in the size of the heart does not seem to occur (except under rare circumstances). A moderate initial increase in the size of the heart can take place within two or three weeks, but enlargement occurs slowly at any stage of the disease. A fair increase or decrease may occur in five or six months, but the average change in this time is not great. When the change in the cardiac surface area in one month is more than 20 sq. cm., pericarditis is probably present. Prognosis is better if the heart is getting smaller rather than larger. The heart muscle shows greater recuperative and improving powers than the heart valves. Usually the progress of a patient can be estimated better by studying the size of his heart than by studying the murmur. Bradycardia is more likely to produce cardiac enlargement than tachycardia, except in certain cases of paroxysmal tachycardia. The size of the heart decreases with continued rest in bed when there is no disease.

Sudden Death After Test Game.—In reporting the death of a captain of an international rugby team who collapsed and died suddenly after having played a strenuous game, Cluver and Jokl state that postmortem examination revealed that a congenital development abnormality caused the fatal circulatory crisis (coronary insufficiency) in this first class athlete. At necropsy the heart was found to be generally hypertrophied, weighing 482 Gm. (17 ounces). The left coronary artery showed numerous atheromatous areas which had caused pronounced narrowing of the lumen at three places: at the orifice of the left coronary artery, the right coronary artery and along the anterior descending branch. The descending aorta measured a little more than half an inch in diameter; that is, it was less than half the normal size. A physiologic fall of blood pressure after the exercise must have occurred. Larger amounts of blood were shifted in the skin as a result of taking a hot bath. The oxygen requirements of the heart muscle were greatly increased after the exercise. It is probable that reflex spasm of the coronary artery was caused by the frustrated efforts of the diseased right kidney to expel its inflammatory contents. Permeability of the myocardial cell membranes was adversely affected by a concurrent respiratory infection. The observation allows a detailed analysis of a case of status thymicolymphaticus. The history of the patient can be traced back to the persistence of the thymus gland after puberty. Thus the arresting effect of this primary developmental disturbance on the maturation of the descending aorta can be understood. The latter anatomic deficiency explains the secondary pathologic reactions which caused death. The case emphasizes that even an extraordinarily high standard of physical efficiency is not a reliable indicator of the state of health. The twin brother of the deceased athlete had died two years before, also during exertion (swimming); postmortem examination was not possible, otherwise an attempt could have been made to prevent the second catastrophe. In view of the circumstances under which these twins died so suddenly, Wolf's suggestion that swimming and bathing should not be indulged in by those suffering from status thymicolymphaticus appears well founded.

American Journal of Diseases of Children, Chicago

64:401-584 (Sept.) 1942

Organic Phosphates of Blood and Mineral Metabolism in Diabetic Acidosis: President's Address. G. M. Guest, Cincinnati.—p. 401.
Long Term Growth of Diabetic Children. A. E. Fischer, H. S. Mackler and H. H. Marks, New York.—p. 413.
*Relation of Vitamin C to Scarlet Fever, Rheumatic Infections and Diphtheria in Children. A. F. Abt, L. M. Hardy, C. J. Farmer and Jessie D. Maaske, Chicago.—p. 426.
Meconium Ileus Associated with Stenosis of Pancreatic Ducts: Clinical, Pathologic and Embryologic Study. E. S. Hurwitt and E. E. Arnheim, New York.—p. 443.
*Vitamin E in Progressive Muscular Dystrophy: Failure of Oral Administration in Fifteen Cases. J. F. Pohl and Dorothy Baethke, Minneapolis.—p. 455.
*Percutaneous Administration of Vitamin K. H. Vollmer, C. Abler and H. S. Altman, New York.—p. 462.
Heart in Children with Thyroid Deficiency. J. J. Baratz and I. P. Bronstein, Chicago.—p. 471.
Studies on Blood Phosphorus: II. Blood Phosphorus Partition in Tetany and Guanidine Poisoning. H. Behrendt, New York.—p. 475.
The Vomiting Disease. J. I. Waring, Charleston, S. C.—p. 482.
Children in Wartime. R. M. Smith, Boston.—p. 497.
Diagnosis of Streptococcosis in Children. P. L. Boisvert, New Haven, Conn.—p. 505.
Streptococcosis in Children: Nosographic and Statistical Study. P. L. Boisvert, D. C. Darrow, G. F. Powers and J. D. Trask, New Haven, Conn.—p. 516.

Vitamin C in Childhood Infections.—Abt and his associates studied the relation of vitamin C to infection in 145 hospitalized children. For controls 110 similar normal unhospitalized children were used. Seventy-six of the patients had scarlet fever, 17 acute rheumatic fever not involving the heart, 26 acute rheumatic heart disease, 16 were convalescent from acute carditis, 2 had chorea and 8 acute pharyngeal diphtheria. The ascorbic acid content of the blood plasma was determined two or three times a week. Alternate patients of the six clinical groups received daily 300 to 600 mg. of supplementary ascorbic acid orally in addition to that contained in the regular hospital diet. The initial values for ascorbic acid of the patients with scarlet fever were significantly lower than those of the normal control group. The clinical course was not influenced by the large doses of ascorbic acid. In the patients with rheumatic fever, chorea and diphtheria the initial levels were not significantly different from those of the normal group. Though the plasma levels in the patients given supplementary ascorbic acid became higher than the levels of those on the unsupplemented diets, the course of the diseases was not affected by the supple-

mentary ascorbic acid. It is concluded from the study that high temperature alone does not significantly lower plasma ascorbic acid or increase to any great extent its utilization in the body. Fever accompanied by active infection, as in the scarlet fever group, may increase vitamin C utilization, which is reflected by a decrease in the plasma level and urinary excretion.

Vitamin E in Progressive Muscular Dystrophy.—Pohl and Bacthke treated progressive muscular dystrophy in 13 boys and 2 girls with vitamin E in the form of cold-pressed wheat germ oil, giving 1 teaspoon daily (equivalent to 5.5 mg. of alpha tocopherol). At the end of five and a half months no improvement was evident, when the administration of a preparation of concentrated vitamin E (mixed natural tocopherols) in oil was begun. Each child was given a quantity of the vitamin concentrate equivalent to about 156 mg. of alpha tocopherol. At the end of two and a half months of this therapy there was still no objective improvement. Therefore at this time in addition to the vitamin E 3 mg. of thiamine hydrochloride and 25 mg. of pyridoxine hydrochloride were given. Seven months on this combined vitamin regimen also resulted in no improvement. The authors concluded that if there was to be any support for Bicknell's report there must be some substance in whole wheat germ not present in the wheat germ oil that is effective in curing progressive muscular dystrophy. They therefore administered daily for seven months 2 ounces (56 Gm.) of the dried fresh whole wheat germ originally used by Bicknell, but still no patient was objectively improved. In all instances the progress of the disease was unretarded, as determined by tests of muscular strength. Five patients ceased to walk during the twenty-two months of observation. Subjectively, 5 subjects claimed that they did not tire as easily and that they were more energetic. The mothers of 3 patients thought the disease was not as rapidly progressive. Progressive muscular dystrophy remains an incurable disease.

Percutaneous Administration of Vitamin K.—Conventional methods of administering vitamin K to the newborn infant are not ideal, because of the possibility of lipid pneumonia from oily solutions administered orally and encapsulation of the oily depot when injected parenterally. Vollmer and his collaborators tried percutaneous administration of concentrations of 0.01 to 1 per cent of menadione in eighty parts of liquid petrolatum and twenty parts of odorless kerosene. An exactly determined amount of the vitamin-oil mixture, usually 0.1 cc., was applied to the chest of the infant and distributed over the skin. Doses of 1 or 0.1 mg. of menadione administered percutaneously during the first day of life were effective in preventing physiologic prothrombinopenia. A dose of 0.01 mg. percutaneously was effective in some infants and ineffective in others, while the same amount in sesame oil orally proved fully effective. Therefore, quantitatively more vitamin K is absorbed through the intestinal wall than through the skin. The speed of percutaneous absorption does not seem to be inferior to that of intestinal absorption and is probably superior to intramuscular absorption. In 1 newborn infant with clinical hemorrhagic disease and a prothrombin time of more than four minutes the bleeding ceased after four hours and the prothrombin time became normal six hours after the percutaneous administration of 1 mg. of menadione. Prothrombinopenia was prevented in infants whose mothers received 1 or 2 mg. of menadione percutaneously two to fifteen hours before delivery. The administration of vitamin K to mothers, though justified, should not be relied on for complete protection of the infant, as the hour of delivery cannot be predicted and the interval between administration and delivery may be too long or too short. Every infant should receive vitamin K immediately after birth, whether the mother did or did not receive it. Since 1 mg. of vitamin K is about one hundred times the minimal requirement, it will be effective even when carelessly applied to the infant's skin. As hemorrhagic disease of the newborn is relatively rare and an intramuscular injection to every infant seems to be a too drastic step in dealing with such a remote risk, the simplicity of percutaneous administration may well render this valuable preventive measure acceptable as a routine procedure. It could be carried out simultaneously with the prophylactic instillation of silver nitrate solution into the eyes soon after delivery.

Annals of Surgery, Philadelphia

116:321-480 (Sept.) 1942

Intestinal Atresia: Intestinal Obstruction in Newborn. J. W. Duckett, Dallas, Texas.—p. 321.
Id.: Atresia of Duodenum; Case Report. R. R. Impink and G. R. Clammer, Reading, Pa.—p. 334.
Id.: Multiple Atresia of Small Intestine; Case Report. D. M. Glover, S. Smith and O. Eitzen, Cleveland.—p. 337.
Large Subacute Gastric Ulcer: Case Report. J. B. Mason and E. D. Zeman, Camp Lee, Va.—p. 342.
Multiple, Primary Nonspecific Jejunal Ulcers with Chronic Duodenal Dilatation. E. Dowdle, Detroit.—p. 348.
Myoepithelial Hamartoma of Ileum with Intussusception. M. E. Cox and E. F. Parker, Charleston, S. C.—p. 355.
*Study of Bacteriology of Common Bile Duct in Comparison with Other Extrahepatic Segments of Biliary Tract. G. Elkeles and P. L. Mirizzi, Cordoba, Argentina.—p. 360.
*Acute Pancreatitis: Report of Twenty-Nine Cases. R. S. Lampson, Hartford, Conn.—p. 367.
Pulmonary Abscess: Surgical Problem; Classification of Cases and Discussion of Surgical Treatment. R. L. Moore, New York.—p. 373.
*Control of Massive Esophageal Hemorrhage Secondary to Liver Damage (Cirrhosis) by Ligation of Coronary Vein and Injection of Sodium Morrhuate. E. J. Grace, Brooklyn.—p. 387.
Sliding and Other Large Bowel Hernias: Development, Classification and Operative Management. C. C. Burton and C. Blotner, Dayton, Ohio.—p. 394.
Spigelian Hernia: Spontaneous Lateral Ventral Hernia Through Semilunar Line. L. P. River, Oak Park, Ill.—p. 405.
Preparation of Nonpyrogenic Infusion and Other Intravenous Fluids by Adsorptive Filtration: Report of Forty-Two Months' Trial. Co Tui and A. M. Wright, New York.—p. 412.
Simple Method of Plasma Protein Estimation. F. W. Taylor and Marjorie M. Gibbons, Indianapolis.—p. 426.
Observations on Failure of Heparin to Inhibit Clotting of Blood in Vitro by Staphylococci. R. H. Rigdon and Anne Haynes, Memphis, Tenn.—p. 430.
Drainage and Wound Closure Technic in Appendicitis Operations. H. Auchincloss, New York.—p. 435.
Immediate Skin Grafting in Treatment of Burns: Preliminary Report. F. Young, Rochester, N. Y.—p. 445.
Electroencephalographic Diagnosis of Subdural Hemorrhage. H. Sjaardema and M. A. Glaser, Los Angeles.—p. 452.
Use of Myotomy in Repair of Divided Flexor Tendons. L. Blum, New York.—p. 461.

Bacteriology of Common Bile Duct.—Elkeles and Mirizzi studied the bacteriology of the common bile duct, gallbladder and duodenum of 75 patients on whom choledochotomy was to be performed. The choledocal bile was sterile in 41 of the 75 patients with disease of the extrahepatic bile ducts. Sterility of the choledocal bile was especially frequent in uncomplicated chronic calculous cholecystitis and atrophic sclerosing cholecystitis; in 25 of 34 such cases. The results were similar in cases of empyema, or hydrops of the gallbladder, when the gallbladder was the only organ involved by the disease. However, the choledocal bile was frequently infected when there were organic or functional complications. Infection of the common duct was present in 4 of 7 cases with stagnation of the choledocal bile resulting from dyskinesia or inflammatory stenosis of Oddi's sphincter in the absence of stone. In the remaining 3, macroscopic alterations of the choledocal bile existed. Stones in the common duct were the most frequent cause of infection of the choledocal bile. Infection occurred in 16 of 18 such cases. It seemed probable that in the 2 cases the calculus found during operation in the common duct was migrating from the gallbladder to the duodenum. The predominant bacteria in the various parts of the biliary system were Escherichia coli, which occurred in 72, and the streptococcus in 49. Other bacteria recovered were Eberthella typhosa from 8, Pseudomonas aeruginosa from 4 and staphylococci, saprophytes and associated bacteria from 13. The common duct is always infected when bacteria are found in other parts of the biliary system. The choledocal bile appears to have strong bactericidal power.

Acute Pancreatitis.—The data that Lampson presents on 29 cases of acute pancreatitis were taken from the private and ward services of the Hartford Hospital from September 1938 to December 1941. The diagnosis was made at operation, at necropsy or on clinical evidence associated with an elevated urinary diastase as described by Foged. The test proved to be accurate. Of the 9 patients on whom operation was performed within three days there has been no patient with a positive test in whom there has not been evidence of pancreatitis. In the 10 patients operated on three or more, but within sixteen, days after onset the process had regressed so that gross pathologic

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evidence of pancreatitis was not present. Ten patients had no operation, and 1 of these died, as did 3 of the 9 operated on within three days. This gives a gross mortality of 14 per cent. It is becoming more and more evident that hasty operative intervention in the extremely acute phase of the disease is a hazardous procedure. The evidence at hand is a 33 per cent mortality in the immediate operative group, as compared to a 5 per cent mortality in the combined nonoperative and delayed operative groups. The surgeon should deliberate carefully before contemplating celiotomy in acute pancreatitis. If operation is necessary, it is best undertaken during the less severe phase of the disease.

Treatment of Massive Esophageal Hemorrhage.—Several procedures have been followed at one time or another for the prevention and control of profuse esophageal hemorrhage. These include dietary restrictions, local diathermy, local compression, injection of solutions onto the general circulation to stimulate coagulation, venesection, splenectomy, ligation of the coronary vein and the injection of a nonirritating yet sclerosing solution (quinine hydrochloride and ethyl carbamate) into the periesophageal or paraesophageal plexus. Grace reports a case of advanced hepatic damage with ascites and esophageal varices; the latter ruptured, producing severe massive hemorrhage. An apparent hepatic fatality was avoided and the patient restored to good health by ligation of the coronary vein with injection of sodium morrhuate. The patient is now in good health and has no complaints. His hemoglobin is 96 per cent, and no ascites is present. A splenectomy was not considered because of the higher operative mortality of the intervention.

Archives of Internal Medicine, Chicago

70:347-512 (Sept.) 1942

Mortality in Diabetic Coma. M. F. Collen, Berkeley, Calif.—p. 347.
Interrelation of Factors Influencing Mortality in Diabetic Coma: Statistical Study. M. F. Collen, Berkeley, Calif.—p. 369.
Experimental Production of Emphysema. R. A. Rasmussen and W. E. Adams, Chicago.—p. 379.
*Gummatous Aortitis. W. H. Gordon, F. Parker Jr. and S. Weiss, Boston.—p. 396.
Congo Red Test for Amyloid Disease: Quantitative Technic. P. H. Harmon, Sayre, Pa., and G. Kernwein, Chicago.—p. 416.
*Utility of Congo Red Test in Diagnosis and in Differential Diagnosis. P. H. Harmon, Sayre, Pa., and G. Kernwein, Chicago.—p. 421.
*Hodgkin's Disease with Specific Lesions Appearing First in Skin. H. A. Reimann, W. P. Havens and P. A. Herbut, Philadelphia.—p. 434.
Vascular Diseases: Eighth Annual Review. G. W. Scopham, G. de Takats, T. R. Van Dellen and P. L. Marcus, Chicago.—p. 444.

Gummatous Aortitis.—Gordon and his associates describe the clinical and morphologic features of syphilitic gummatous aortitis. They report 3 of the 11 cases encountered among 360 cases of syphilitic aortitis recorded in the departments of pathology of the Boston City Hospital and the Massachusetts General Hospital. Gummatous aortitis usually has gumma formation in the media. In the series the gummas were usually of miliary type and could be definitely recognized only microscopically. They occurred as areas of necrosis involving both muscle and elastic tissues. The necrosis either was of the infarct type or was composed of structureless material containing nuclear debris. The form of the medial gummas conformed to the structures of the media, being roughly quadrangular or oval. At the periphery of such gummas were broad sheets of vascular granulation tissue which were heavily infiltrated with lymphocytes, plasma cells and some large mononuclear cells. Giant cells were present. The adventitia showed thickening where occasionally gumma occurred. The clinical features of gummatous aortitis are not specific or characteristic. Clinical diagnosis is difficult or even not feasible. The coexistent rheumatic condition (in 3 of the 11) may raise suspicion. In 1 of the 3, diagnosed macroscopically, the gummatous process completely occluded the right coronary artery and partially occluded the left one. In another the gummatous lesions were present also at the base of the aortic valve. In the third case an extensive gummatous process affected not only the aorta but the pulmonary artery; the necrotic gummatous lesions resulted in perforation of the aorta into the trachea. In none was there gumma in the myocardium. Gummatous aortitis is responsible for symptoms only if it leads to narrowing or occlusion of the coronary arteries or perforation of the aorta. In the 360 cases of chronic syphilitic aortitis, atheromatous changes over the area affected by the syphilitic lesions were prominent. The diagnosis of gummatous aortitis can be suspected only in rare instances in young persons without aortic insufficiency but with a history of syphilitic infection in whom thoracic pain and rapidly progressing heart failure are associated with attacks of cardiac asthma and pulmonary edema.

Congo Red Test.—Harmon and Kernwein believe that many problems in diagnosis of amyloid deposits might be clarified by the use of the congo red test. They present results of one hundred and thirty-nine injections of congo red in 69 patients. They have preferred to make a clinical and laboratory diagnosis of amyloid disease only when the dye was completely, and not only more than 50 per cent, removed from the blood after an hour. If complete absorption is adopted as the standard of a "positive" test the congo red test will have great significance. In the 8 patients in whom complete clearance of the dye occurred in one hour and who subsequently came to necropsy large quantities of amyloid were encountered in the organs. The presence of amyloid in the liver, spleen and other organs was confirmed at necropsy in 10 patients. The test indicated large quantities of amyloid in 8 other patients; 2 had a palpably enlarged liver at the first examination and 2 appeared to be recovering from amyloid disease as judged from the results of the dye test, disappearance of albuminuria and anemia and improvement in general well being, and 4 had appreciable amounts of amyloid deposits as judged by the dye test but their livers and spleens were not palpable. The test should be valuable in following the course of amyloid disease. In recovery from this disease the positive dye test is the last sign to disappear. This occurs some months after the organs are no longer palpable and anemia and albuminuria disappear.

Hodgkin's Disease.—In the case of Hodgkin's disease that Reimann and his colleagues present, the disease was suspected early in its course. Because the earliest and most prominent lesions were in the skin and demonstrable enlarged lymph nodes were not present, and because later microscopic changes in biopsies from the skin, lung, spleen and bone marrow were not classic or pathognostic, the possibility of chronic, relapsing, febrile, nonsuppurative panniculitis was considered. The condition conformed to this diagnosis except for the visceral involvement, its occurrence in a man, the occasional ulceration of a cutaneous lesion and its fatal end. As far as the cutaneous lesions were concerned it was panniculitis but with grave systemic involvement as well, all a part of the chronic granulomatous condition of Hodgkin's disease. The diagnosis was made only at necropsy when typical lesions of Hodgkin's disease in the abdominal lymph nodes were found to be associated with the microscopic changes in the skin and in the lungs observed at biopsy.

Archives of Ophthalmology, Chicago

28:581-766 (Oct.) 1942

Epidemic Keratoconjunctivitis ("Shipyard Conjunctivitis"): I. Isolation of Virus. M. Sanders, New York.—p. 581.
Place of Hemorrhagic Glaucoma in Etiologic Classification of Glaucoma. H. S. Sugar, Vancouver, Wash.—p. 587.
Acetylcholine in Ophthalmology and Treatment of Ocular Pain. E. Hartmann, Riverdale, N. Y.—p. 599.
Light Sense in Pigmentary Degeneration of Retina. Louise L. Sloan, Baltimore.—p. 613.
Determination of Axis and Amount of Astigmatic Error by Rotation of Trial Cylinder. A. Linksz, Hanover, N. H.—p. 632.
Influence of Pontocaine Hydrochloride and Chlorobutanol on Respiration and Glycolysis of Cornea. H. Herrmann, Sylvia G. Moses and J. S. Friedenwald, Baltimore.—p. 652.
The Cornea: V. Physiologic Aspects. D. G. Cogan and V. E. Kinsey, Boston.—p. 661.
Development of Human Eye at Five and Five-Tenths Millimeter Embryonic Stage. A. L. Kornzweig, New York.—p. 670.
*Problem of Retinitis in the Diabetic Patient. G. E. Anderson, Brooklyn.—p. 679.
Retinal Blood Pressure. I. Puntenney, Chicago.—p. 691.
Foster Kennedy Syndrome Associated with Non-Neoplastic Intracranial Conditions. H. E. Yaskin and N. S. Schlezinger, Philadelphia.—p. 704.
Oculoglandular Tularemia. E. Francis, Washington, D. C.—p. 711.

Retinitis in Diabetic Patient.—Anderson suggests that the patient likely to acquire diabetic retinitis or one who already has the condition be treated early with diets relatively high in carbohydrates, low in fat and low in calories, together with adequate insulin if needed, so that long before arteriosclerosis has developed excessive stores of fat will have been reduced to

a minimum. This will prevent the hyperlipemia which is so common in the untreated or poorly treated diabetic patient. It will not prevent the eventual development of the fatty liver of lipocaic deficiency. Arteriosclerosis and its retinitis may possibly be delayed by such a diet. Also the administration of lipocaic may possibly accomplish this. When arteriosclerosis and its sequela retinitis have developed, the treatment should aim to avoid those physical states which favor evolution of the process and needless vascular accidents in already damaged vessels. The process may be partially stayed by scrupulously preventing unnecessary fat mobilization and inefficient fat metabolism by an adequate diet in carbohydrate and calories to maintain body weight which withholds all but a minimal intake of fat (about 45 Gm.). Loss of weight or ketonuria indicates that the body is not sparing fat but is being driven to a most undesirable metabolism of the endogenous fat. The avoidance of vascular accidents can in part be accomplished by guarding against heroic reductions in blood sugar and moderating it only when it is associated with a gain in weight and/or persistent glycosuria. Adequate experimental appraisal of lipocaic as a means of preventing arteriosclerosis in diabetes is awaited.

Archives of Otolaryngology, Chicago

36:311-454 (Sept.) 1942

External Operations on Nasal Accessory Sinuses. N. Patterson, London, England.—p. 311.
Practical Points in Diagnosis and Treatment of Sinusitis. W. C. Bowers, New York.—p. 327.
Value of Fatty Acid Derivatives in Treatment of Chronic Obstructive Rhinitis. E. A. Thacker, Goldsboro, N. C.—p. 336.
Bowen's Disease and Superficial Mucosal Epithelioma of Upper Respiratory and Alimentary Tracts. G. R. Brighton and F. Altmann, New York.—p. 354.
Paranasal Sinuses. S. Salinger, Chicago.—p. 393.

Connecticut State Medical Journal, Hartford

6:765-838 (Oct.) 1942

Problem Children: Electroencephalographic Diagnosis and Pharmacologic Treatment. C. Bradley, East Providence, R. I.—p. 773.
Civilian Medical Practice—Pattern of the Future. M. Atkinson, New York.—p. 778.
Debate on Socialized Medicine—Layman's View. E. W. Bakke, New Haven.—p. 781.
Blood and Blood Substitutes for Emergency Use. G. H. Smith, Pine Orchard.—p. 786.
Injuries to Face: Injuries to Soft Tissue of Face. L. N. Claiborn, New Haven.—p. 793.
Id.: Injuries to Nose, Paranasal Sinuses, Mouth and Ears. N. Canfield, New Haven.—p. 796.
Id.: Injuries to Jaws. B. G. Anderson, New Haven.—p. 799.
The Bodice Dressing. W. Grossmann, Hartford.—p. 806.

Journal of Allergy, St. Louis

13:537-646 (Sept.) 1942

Antigenic Fractions in Ragweed Pollen: II. Further Purification of Water Soluble Fractions and Study of Alkali Soluble Fractions and Estimation of These Fractions in Pollen Extract. A. Stull, W. B. Sherman and W. M. Wing, New York.—p. 537.
Absorption of Allergens: Presidential Address. M. Walzer, Brooklyn.—p. 554.
Comparative Immunologic Studies with Salivary and Epithelial Extracts of Dog, Cat and Rabbit. W. C. Spain, R. E. Gibson and Margaret B. Strauss, New York.—p. 563.
Studies in Food Allergy: II. Sensitization to Fresh Fruits; Clinical and Experimental Observations. L. Tuft and G. I. Blumstein, Philadelphia.—p. 574.
Results of Intradermal Skin Tests with Trichina Antigen in Allergic and Normal Individuals. C. E. Arbesman, E. Witebsky and H. Osgood, Buffalo.—p. 583.
Allergy in Identical Twins: Report of Seven Pairs of Twins. L. H. Criep, Pittsburgh.—p. 591.
*Treatment of Rhus Poisonin by Alcoholic Extracts in Small Group Controlled by Preliminary Patch Tests. J. R. Clarke Jr. and C. M. Hanna, Philadelphia.—p. 599.
*Oral Prophylaxis Against Poison Ivy: Follow-Up Report. H. Gold and P. Masucci, Glenolden, Pa.—p. 606.
Financial and Some Social Aspects of Asthma in the Clinic Patient. G. E. Gaillard, New York.—p. 611.

Treatment of Rhus Poisoning by Alcoholic Extracts.—Clarke and Hanna used an alcoholic extract of Rhus toxicodendron to protect 14 boys from rhus dermatitis who were to spend the greater part of the summer of 1941 in a mountain camp where rhus dermatitis had been a yearly scourge. After a preliminary patch test, using a 1:500 or 1:100 dilution of the extract, each boy was given 0.05 cc. of the extract (in the following dilutions) subcutaneously at weekly intervals: a 1:100, 1:50 and a 1:10 dilution and then two injections of the concentrate. Not 1 of the group was confined to bed because of rhus dermatitis. Of 107 other boys in the camp who received patch tests complete data were obtained on 82, of whom 71, or 86 per cent, had a positive reaction to the test. All of them were given prophylactic injections; 7 had the rash as severely as in previous years or more severely, 19 had a less intense or trifling eruption and 56 escaped entirely. Therefore in 8.5 per cent the prophylaxis was an apparent failure. Of the 35 who had had poison ivy in former years 7 had as severe a rash as in former years, in 12 it was less severe and 16 escaped the rash entirely. Of the 47 who had never had poison ivy dermatitis only 7 had a mild eruption and 40 escaped entirely.

Oral Prophylaxis Against Poison Ivy.—Gold and Masucci state that the results of oral prophylaxis against poison ivy in 33 cases were disappointing in that the incidence of toxic cutaneous reactions was high, and the desensitization obtained appeared to be of rather short duration, lasting in some instances only a few months.

Rhode Island Medical Journal, Providence

25:189-204 (Sept.) 1942

The Family Physician and the Children's Psychiatric Hospital. C. Bradley, East Providence.—p. 189.
Treatment of Fractured Patella. E. S. Cameron, Providence.—p. 193.

Tennessee State Medical Assn. Journal, Nashville

35:289-334 (Aug.) 1942

Imperforate Anus with Rectovaginal Cloaca: Case Report. W. C. Dixon, Nashville.—p. 289.
Syphilis Problem in Relation to Present Emergency. E. R. Hall, Memphis.—p. 297.
Treatment of Compound Fractures Under War Conditions. E. D. Newell, Chattanooga.—p. 304.
The Internist's Problem of Low Back Pain. H. B. Gotten, Memphis.—p. 309.

35:335-374 (Sept.) 1942

Intestinal Drainage—Uses and Abuses in Obstruction. B. Brooks, Nashville.—p. 335.
*Puerperal Sterilization. H. P. Hewitt and E. F. McCall, Chattanooga.—p. 340.
Diagnosis and Treatment of Some Complications of Sulfonamides. I. G. Duncan, Memphis.—p. 344.

Puerperal Sterilization.—Since July 1939, according to Hewitt and McCall, 267 women have been sterilized in the obstetric service of the Baroness Erlanger Hospital during the puerperium because of social or economic conditions, toxemia, heart disease or some other chronic disease. The Madlener, the Pomeroy, the cornual resection and the triple ligation technics were employed. Of the 267 patients 161 were sterilized within twenty-four hours post partum, but there seemed to be no appreciable difference in morbidity or complications when the operation was done later. Twenty-nine patients were morbid; that is, they had a postpartum temperature on two successive days of 100.4 F. or more. There were 6 instances of endometritis and 1 each of thrombophlebitis, pyelitis, bronchitis and wound infection. The authors believe that the selection of patients for sterilization plays a greater role in subsequent complications and morbidity than the time at which they are operated on. The management during labor of candidates for sterilization is ultraconservative. The anesthetic of choice is local. Triple ligation of the tubes with a nonabsorbable suture is comparable in simplicity to the Madlener technic but failure is much higher, 6.1 as compared to 2.1 per cent. This difference can probably be explained on the theory that the sutures have been tied too tight, cut through the tube and afford it a better chance of canalization. Cornual resection probably offers the lowest percentage of failure and also has the advantage of preventing subsequent cases of salpingitis. However, it is time consuming and can be a bloody procedure. The Madlener technic is advocated because it is easy to perform and its results are relatively good. A follow-up on 215 discloses that 8 had subsequent pregnancies, a total failure of 3.7 per cent; of the 8 women, 2 had been sterilized by the Madlener technic and 6 by triple ligation.

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FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Journal of Laryngology and Otology, London

57:225-280 (May) 1942

Cerebellar Abscess: Some Case Records. N. Asherson.—p. 225.
Role of Epiglottis in Anesthetic Deaths. G. H. Caiger.—p. 250.

Lancet, London

2:205-234 (Aug. 22) 1942

*Local Treatment of Infected Wounds with Sulfathiazole. H. N. Green and T. Parkin.—p. 205.
*Pholedrine in Prevention of Operative Shock. E. Landau, V. Logue and H. Kopelman.—p. 210.
Locked Twins: Three Cases. S. W. Wright.—p. 212.
Pancreatitis and Diabetes. R. Smith.—p. 215.
Mass Radiography: Voluntary Scheme in a Factory. G. B. Stanford, with supplementary notes on technical organization by K. C. Clark. —p. 216.
Miniature Scarlet Fever After a Dick Test. H. R. E. Wallis.—p. 219.

Sulfathiazole Locally for Infected Wounds.—The different sulfonamides do not have a specific action against certain bacterial species: their bacteriostatic effect on any species is directly related to the capacity of the compound to block the enzyme whose substrate is *p*-aminobenzoic acid. Their therapeutic effect when given by mouth is modified by their rate of absorption, but in local use the modifying factor is the solubility of the drug in tissue fluid. A real advantage of local treatment is that the danger of toxic effects is slight and the hazards of systemic sulfonamide treatment, particularly renal complications, are thus obviated. The objections to local application are that pus and tissue exudates have an antisulfonamide action, their rapid absorption from the local site, the theoretical danger of local damage to the tissues by a saturated sulfonamide solution, the development of resistant strains of bacteria and the fact that a sulfonamide applied locally penetrates only a few millimeters into the infected tissue and therefore may not reach viable bacteria, which are accessible via the blood stream. Experimental evidence strongly favors local treatment in localized infections. Clinical trial by Green and Parkin in 14 severely infected wounds showed an early and progressive response to energetic and sustained local treatment. Many of the wounds had failed to respond to other treatments, including sulfonamides by mouth. But with the intensive local application of sulfathiazole the infection subsided rapidly, though the causative organism usually was not eliminated. Preliminary trials with warm sulfathiazole drip for local sepsis gave excellent results. When sepsis is deep it is obviously of great value to clear up the surface infection, so that surgical access is made safer. Local antiseptic treatment with sulfathiazole should be given an adequate trial. Penicillin and other powerful biologic antiseptics like gramicidin may later displace the sulfonamides, but at present their place in local treatment appears to be for sulfonamide resistant bacterial strains. The most potent sulfonamide available should be used in prophylaxis as in established infections. The treatment in no wise displaces accepted surgical measures and is of no value in sepsis below an unbroken surface.

Isomer of Ephedrine in Prevention of Operative Shock.—Landau, Logue and Kopelman used pholedrine on 10 old or anemic patients or in long extensive operations in which severe shock becomes probable. Pholedrine, which is β-(*p*-oxyphenyl)-isopropylmethylamine, an isomer of ephedrine, was introduced as veritol, and the authors used a preparation called Stimatone. They have used it prophylactically to prevent the onset of shock (its use has been disappointing in air raid casualties with fully developed shock) and in "bad risk" patients, in whom severe shock is likely to develop despite adequate treatment. The drug can be given subcutaneously, intramuscularly or—if rapid action is desired—intravenously. It may be repeated many times without any weakening or suppression of its biologic action. Pholedrine was used with both inhalation and spinal anesthetics. With spinal anesthesia, 0.5 cc. of pholedrine is given ten minutes before the spinal injection; if a significant drop in blood pressure occurs a further 0.5 cc. is given subcutaneously and the blood pressure is brought back to within normal limits. If the fall has been profound the blood pressure can be readily restored by 0.25 cc. of pholedrine intravenously followed by 0.5 to 0.75 cc. subcutaneously. Pholedrine does not replace adequate preoperative preparation by blood transfusion, saline infusion and other measures. Similarly, if it is to have its full effect during operation the blood volume must be maintained. Under these conditions other cardiac or respiratory stimulants were not necessary.

Medical Journal of Australia, Sydney

2:55-72 (July 25) 1942

Hospital Work with the Australian Imperial Force in the Middle East. A. S. Walker.—p. 55.

2:73-90 (Aug. 1) 1942

*War Neuroses in Tobruk: Report on 207 Patients from the Australian Imperial Force Units in Tobruk. E. L. Cooper and A. J. M. Sinclair. —p. 73.
Effect of Irradiation with Ultraviolet Rays and Short Waves on Metabolism and Insensible Perspiration. A. Lippmann.—p. 77.

2:91-110 (Aug. 8) 1942

Collection and Storage of Blood, Blood Serum and Blood Plasma. C. W. Ross.—p. 91.
Transfusion by Direct Methods. J. Smith.—p. 92.
Transfusion Using Indirect Methods. C. Fortune.—p. 94.
Some Observations on Transfusion in the Middle East. I. J. Wood.—p. 97.

War Neurosis in Australian Forces in Tobruk.—From May 1941, when a war neurosis clinic was established in an underground concrete shelter in Tobruk, to August 207 men from the Tobruk fortress area were examined by Cooper and Sinclair, who followed the records of these men through British and Australian hospitals and convalescent depots. Of the 207 patients, 79 were returned to and are still with their units from two to four months since their return; 48, after treatment at the base, have returned to duty with a classification of fit for front line service and 48 are classified as fit for base duties. It appears that 4 out of every 5 men who break down under the stress of modern warfare are capable of returning for further useful service. The psychobiologic makeup of each of the 207 men had for the time being one dominating emotional reaction —fear, which was frankly appreciated and expressed by most of them. This fear reaction faded as soon as the massive stimulus producing it was removed. In some a morbid anticipation of bombing or shelling remained. In others fear laid the basis for the development of an anxiety neurosis. Before treating these men their full medical records should be obtained from the forward area, the regimental medical officer and, from the platoon or company commander, information as to the patient's previous record in the unit, behavior under fire and the degree of psychic and physical trauma to which he was subjected. In all, 132 suffered from anxiety states, 34 from simple conversion hysteria, 5 from hypochondriasis, 9 from psychoneurosis, 10 from congenital mental defects, 4 from schizophrenia, 1 from psychotic depression, 2 from true exhaustion states and 4 from physical exhaustion; 6 were malingerers. The regimental medical officer can deal with most men in the early stages of anxiety neurosis or fear states by suggesting that certain men be given duties away from extreme stress, by talking to potential patients and in many instances preventing the anxiety state. Results depend on the cooperation of the soldier's unit and the army organization.

Practitioner, London

149:129-192 (Sept.) 1942

Intestinal Obstruction. S. Barling.—p. 129.
Idiopathic Ulcerative Colitis. S. W. Patterson.—p. 137.
Diverticulosis and Diverticulitis. H. C. Edwards.—p. 145.
Treatment of Diarrhea in Infancy. C. Harris.—p. 151.
Sprue and Allied Disorders. R. B. Hawes.—p. 157.
Intervertebral Disk Lesions and Cotugno's Disease: Review. K. Stone. —p. 167.
Pharmacohypnosis Treatment of Neuroses. F. Reitman.—p. 175.
Minor Surgery: XIV. Minor Surgery in Childhood. H. W. S. Wright. —p. 179.

Chirurg, Berlin

13:97-128 (Feb. 15) 1941. **Partial Index**

*Percutaneous Treatment of Fractures. R. Hoffmann.—p. 101.
Parasacral Route in Removal of Retained Projectiles in Pelvic Wounds. H. Rüd.—p. 112.
Idiopathic Megacolon. P. R. Michaël.—p. 114.
Rupture of Varicose Epigastric Vein as Unusual Cause of Massive Intraperitoneal Hemorrhage. F. Pelmer.—p. 113.

Percutaneous Treatment of Fractures.—According to Hoffmann, the percutaneous treatment of fractures has advantages which have not all been utilized. The percutaneous device which he developed employs a ball and socket screw. It is based on the following principles: 1. Previous to the reposition a handy grip is attached to both fracture ends as far away from the fracture hematoma as possible. 2. These grips make it possible to control the fracture from outside and even under the fluoroscopic screen. 3. At the moment when the position of the fragments is satisfactory, the ball and socket screws attached to the grips and through which a steel rod is introduced, which bridges either the fracture or the joint, are tightened first with the fingers and then with a screw driver. Thus the fracture is reduced and fixed. 4. If it seems desirable to change the position somewhat, the screws of the ball and socket joints are merely loosened slightly. 5. The consolidation is controlled by loosening the ball and socket screws. The chief indication for this method is the open fracture of the diaphyses as well as of the metaepiphyses inclusive of the elbow, knee and talocrural joints. The method fulfils the main requirement of absolute immobilization. It permits free access to the wound, avoids the offensive wetting of the plaster cast by exudates and does not bring a foreign body in contact with the wound, because the two grips are attached far from the fracture focus or from the injured joint. The use of the percutaneous ball and socket screw is advisable also in certain closed fractures, particularly if the dislocation is severe or if there is repeated slipping and the conservative method fails. It may be used as an aid in bone surgery and in orthopedics. The description of the structure and application of the apparatus are illustrated in diagrams. The chief modes of application of the apparatus are demonstrated. Several clinical cases are described and illustrated with photographs and roentgenograms. The author concludes that the method is easy to learn and is as harmless as wire extension.

Acta Chirurgica Scandinavica, Stockholm

86:203-386 (March 11) 1942. **Partial Index**

"Closed Osteosynthesis," with Special Reference to War Surgery. R. Hoffmann.—p. 235.
*Heparin as a Therapeutic Against Thrombosis: Results of One Year's Treatment at Mariestad Hospital. G. Bauer.—p. 267.
Surgical Mortality in Nurslings. L. Holmberg.—p. 287.
Casuistics of Mesenterial Cysts: Case of Chylangioma. S. Brattström. —p. 308.
Corrective Plastics in Residual Cavities. O. Hultén.—p. 315.
*Increase in Volume of Remaining Lung Following Lobectomy and Pneumonectomy. E. Husfeldt and H. H. Wandall.—p. 359.
*Treatment of Acute Intussusception in Children. E. Edberg.—p. 369.

Heparin as a Therapeutic Against Thrombosis.—Bauer employed heparin as a therapeutic rather than a prophylactic measure in thrombosis. He maintains that the drug should be withheld until thrombosis is definitely established. To insure early diagnosis he resorts to venography, which makes it possible to demonstrate the first manifestations of the condition in the lower leg. As soon as the diagnosis is established, heparin is given in large doses. The disease generally follows an abortive course. The author gives an account of all the cases of certain or of suspected thrombosis admitted to his hospital during the period from Oct. 1, 1940 to Sept. 30, 1941. Thirty-eight cases were diagnosed when the thrombotic process was still localized to the lower leg. They were treated with heparin, generally 100 mg. three times daily for from three to five days, the total dosage averaging just over 1,100 mg. There were no deaths and no complications. The average length of time in bed after the beginning of the treatment was only 6.4 days. Thirteen cases were not seen until the thrombotic process had spread to the thigh. The doses here were somewhat larger than in the former group, the total averaging 1,540 mg. There was one death, due to pulmonary embolism. The average time in bed was 7.3 days. In 6 out of 72 examinations venography did not decide with certainty whether thrombosis was present or not. These patients were treated with heparin, developed no complications, and were able to leave bed in a few days. In 15 cases clinical suspicion of thrombosis was ruled out by a definitely negative venogram. These patients received no heparin and were allowed to get up immediately. No signs of thrombosis manifested themselves later. By the use of heparin the treatment time for patients suffering from thrombosis was reduced to about one-seventh that usually required. Mortality from thrombosis was greatly reduced and subsequent serious invalidism will probably be much decreased.

Size of Remaining Lung After Lobectomy and Pneumonectomy.—According to Husfeldt and Wandall the empty pleural space is often completely obliterated after lobectomy or pneumonectomy. As contributing factors they list (1) collapse of the thoracic wall by approximation of the ribs and decrease of the intercostal spaces, (2) elevation of the diaphragm, (3) displacement of the mediastinum toward the operated side and rotation of the heart backward into the lateral part of the costovertebral groove, (4) formation of an exudate which by coagulation and organization is transformed into a meshwork of fibrous tissue and (5) increase in the volume of the remaining lung tissue—the remaining part of the lung in the case of lobectomy and the remaining lung in the case of pneumonectomy. It is this last phenomenon which the authors deal with in the following. The increase in volume which follows immediately after the operation may be due to emphysema or simple dilatation of the terminal respiratory units. Behrend and Mann have tried to explain the increase in volume as a mobilization of reserve material in the lung, presuming a constant play of open and closed lobuli in the lung in analogy with the open and closed glomeruli in the kidney. The present article is intended to demonstrate that Behrend and Mann's assumption cannot be correct and that their histologic pictures are misleading on account of inadequate technic. The authors made their studies on mice which have been killed by strangulation, whereupon the lungs have been removed with ligated trachea. Everywhere in the lungs the authors found open alveoli, bronchioli and ductuli alveolares, even if, before the strangulation, the mice stayed in an atmosphere with an oxygen content of 70 per cent, which should considerably increase the possible reserve material. This, however, only caused a decrease in the size of all the alveoli.

Acute Intussusception in Children.—Edberg shows that roentgenologic examination has been of great importance in intussusception. The diagnosis has become more exact and the introduction of the contrast fluid by means of pressure enema is now a therapeutic method which largely has replaced laparotomy. The pressure enema was already recommended by Hirschsprung and is now enjoying a new vogue in a modernized form. The author reports his experiences with this treatment. His review includes 69 cases of acute intussusception. He regularly used contrast fluid pressure enemas. This method proved successful in 38 per cent of the cases. In 66 cases the intussusception was located in the ileocecal region. Three different types are distinguishable in this region: the cecoileocolic, the ileoileocolic and the type here called combined. The latter begins in the lowest part of the ileum and obstructs the passage into the cecum. The intussuscepted ileum together with the valvula Bauhini forms a combined caput. The first and the third type should preferably be treated by pressure enemas. The ileoileocolic type calls for prompt surgical treatment. Even this type can sometimes be completely desinvaginated by mechanical means. Although it is often possible to desinvaginate, at least partially, and fill the whole of the cecum with contrasting fluid, the physician may nevertheless remain uncertain whether the ileum has been effectively desinvaginated. In 11 cases relapses occurred. These 11 children were treated twenty-eight times for acute intussusception, fifteen times by means of pressure enemas only and thirteen times by subsequent laparotomies. It is obvious that the combined type has the majority of relapses. In this type certain anatomic variations in the lowest part of the ileum have been noted. The author considers them to be predisposing to the disease.

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Book Notices

Standard Nomenclature of Disease and Standard Nomenclature of Operations. Edited by Edwin P. Jordan, M.D. Third edition. Fabrikoid. Price, $4. Pp.1,022. Chicago: American Medical Association, 1942.

Uniform terminology is of the utmost importance in the advancement of medical science. The revised Standard Nomenclature of Disease and the new Standard Nomenclature of Operations are priceless contributions to the creation of uniformity in the designations by which diseases and operations are recorded in hospitals. Only by such uniformity can interchangeability of medical records among hospitals mean true insight into the history of the patient. Only by such uniformity can clinical research be conducted on a scale which correlates the experience of many institutions, rather than being narrowed to the results obtained in a single hospital.

This edition embodies some 3,500 additions, deletions and corrections in individual diagnostic entries, and the entries in the section on Disorders of the Endocrine Glands and Hormones which appeared in the classification of the "Body as a Whole" in previous editions have been reclassified under the appropriate organs. It is therefore a drastic revision which makes necessary its universal substitution for the earlier printings. Dr. Edwin P. Jordan, the editor, and the editorial advisory board are to be congratulated on the accomplishment of a most valuable work.

The Standard Nomenclature was conceived by the New York Academy of Medicine, which in 1928 appointed the National Conference of Nomenclature of Disease, with representatives from the leading medical and health organizations in the country. Financial support was secured mainly from the Commonwealth Fund, and the work was directed by Dr. H. B. Logie, executive secretary of the National Conference. The first edition was completed in 1933 and the second in 1935. The work of periodic revision was taken over by the American Medical Association in 1937. On March 1, 1940 the National Conference on Medical Nomenclature was held under the auspices of the American Medical Association, with Dr. Haven Emerson of New York serving as chairman. Following this, with the assistance of carefully selected committees and an advisory board, the third edition was completed and published during the present year. Closely associated with the work from its inception, and at present a member of the editorial advisory board, has been Dr. George Baehr, formerly chairman of the National Conference on Nomenclature of Disease and now chief medical officer of the Office of Civilian Defense.

The revised Nomenclature is most complete and is comprehensively compiled so that it can be used in any size institution. Two classifications are used: (1) the topographic, or the portion of the body involved, and (2) the etiologic, or the cause of the disease. These two classifications are indicated by numbers separated from each other by a hyphen. The first three digits indicate the anatomic site; the last three, following the hyphen, describe the etiologic agent.

The new Standard Nomenclature of Operations fills a dire need. In this field there has been great confusion, although several good systems have been in use in different places. To decide on a uniform terminology that would be acceptable to all has been a prodigious task, and the committee under the chairmanship of Dr. H. Perry Jenkins modestly disclaims having done more than to provide a basis for a standard nomenclature, stating that "years of usage will be required to bring about any real standardization in designating operations by a uniform terminology." It is an excellent basis, however, and will certainly speed standardization.

The members of the Committee on Operative Nomenclature drew on their own wide experience in compilation of terminologies, Dr. Jenkins having compiled the Terminology of Operations of the University of Chicago Clinics, Dr. T. R. Ponton being the author of An Alphabetical Nomenclature of Diseases and Operations and Dr. Bronson S. Ray having compiled, with the assistance of Miss Helen B. Lincoln, the New York Hospital Classified Nomenclature of Operations. Due consideration was also given to terminologies developed by the Western Surgical Association, the University Hospitals of Cleveland, the University of California, the Mayo Clinic and the Duke Foundation, and substantial assistance was given by many individuals. The division of fundamental surgical operations into eight main categories—incision, excision, amputation, introduction, endoscopy, repair, destruction, suture and manipulation—was carried over to a large extent from the New York Hospital nomenclature. The topographic numbers follow exactly those used in the Standard Nomenclature of Disease. The operative procedure is substituted for the etiologic classification, which in the other nomenclature appears after the hyphen.

The instructions to medical librarians in the use of the Standard Nomenclature of Disease and Standard Nomenclature of Operations are most valuable and will help in perfecting the system in any hospital.

It is most gratifying to feel that we now have a common basis for our medical language which will be of great advantage in compiling statistics, in clinical research, in writing scientific papers and in many other ways. Every physician and every hospital should become familiar with this system and use it to the fullest extent, for it represents the best possible work on the subject in the present period.

Tratado de patología quirúrgica general. Por el Dr. Manuel Bustos Ansart. Second edition. Cloth. Pp. 879, with 189 illustrations. Buenos Aires, Barcelona, Madrid & Rio de Janeiro: Editorial Labor, S. A., 1941.

The second edition of this fine work bespeaks its popularity. It is timely, practical and well systematized. The bibliography is exhaustive. The first part deals with traumatisms in general and is divided into twelve subheadings (such as contusions, wounds, mechanical injuries, vascular traumas, injuries to the nerves, bones, articulation, the effects of gases in warfare and frostbite). This section is especially thoroughly prepared and concludes with a consideration of the complications accompanying the various traumatisms. The second part consists in a discussion of infections, and here again one finds thirty-one subdivisions comprising many important and timely subjects besides the recognized entities granuloma inguinale and botryomycosis. In the third part surgical dystrophies are discussed; it also embraces a variety of considerations such as the hereditary constitution of the individual, congenital malformations and dystrophies of all systems. The fourth or last part deals with tumors and discusses the varieties of neoplasms. Each chapter is followed by an alphabetically arranged bibliography which is thorough and up to date. The illustrations are mainly well executed photographs and photomicrographs. All in all, this is a splendid work, and those who read Spanish will find in it a fount of information.

Young People in the Courts of New York State. Legislative Document (1942). No. 55. Paper. Pp. 309. Albany: Williams Press, Inc., 1942.

This is a report made to the legislature of New York State by a committee appointed to investigate the facilities for the care and treatment of children coming under the jurisdiction of children's courts as well as those from 16 to 18 years of age coming under the jurisdiction of adult correction. The point of this report, of course, is to suggest making changes in the present handling of cases of minors. The report is well presented and covers a great deal of ground, including practically all the statutes which have to do with criminal jurisdiction over children and minors, as well as covering the penologic philosophy which has now grown up with minors and children. An extensive chapter covers the history of juvenile courts and the way they operate in New York State, and there are excellent chapters on adolescents and "less than adult" offenders in other states. The material on adolescents and on youths contains a good deal of medical material, discusses the factor of intelligence and gives statistics with regard to criminology. There is also some discussion of wayward minor laws in other jurisdictions. There is one part of the book devoted to legislations recommended but not acted on, both those which have been reintroduced and those that have not, and there is another part devoted to considering various proposals about minors' courts and discussing American Law Institute proposals, along the lines of youth correction authority acts. The committee concludes with some rather general recommendations which tend toward the continuation of work on treatment and correction of delinquency in children and youths. Those interested in child psychiatry, even those who do pediatrics and have occa-

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sional problem children brought to them, should find this work stimulating. In a way it is technical, and there is more of the medicolegal picture presented than any picture of straight medical or even psychiatric treatment of the offender, but it all contributes to the background of those who have to deal with problem children.

A Handbook of Allergy for Students and Practitioners. By Wyndham B. Blanton, M.A., M.D., Litt.D., Professor of Clinical Medicine and Chief of the Immunology Clinic, U. P. D., Medical College of Virginia, Richmond. Cloth. Price, $3. Pp. 190, with 21 illustrations. Springfield, Illinois & Baltimore: Charles C Thomas, 1942.

In the pages of this book our present knowledge of allergy is telescoped in a well organized manner. It could be an excellent guide for a teacher, to be used as an outline for developing his lectures on the subject. For students, as stated in the preface, it answers "the need for a brief but inclusive text, to be supplemented by conference, quiz and clinical demonstration." With merely the bare outlines of allergy found in this book, well organized as it is, without the supplementary lectures necessary to understand the subject, it can be of little value to practitioners who have not previously had an excellent course in allergy. The manner in which the subject of immunization against hay fever is treated illustrates the limitations of the volume. While the subject is well organized under the headings of preseasonal, coseasonal and perennial treatment, each heading is given one brief paragraph. The total space devoted to this matter of major importance to the general practitioner is one and a half pages, a subject that the teacher of allergy would find difficult to compress into a one hour lecture. The appendix covers twenty-seven pages and contains instructions for the preparation of a "dust free" room (courtesy of Allergen-Proof Encasings Company) and recipes for special diets reproduced by courtesy of the Ralston Purina Company.

Professional Adjustments II. By Gene Harrison, A.B., R.N., Educational Director, Druid City Hospital School of Nursing, Tuscaloosa, Alabama. Cloth. Price, $3.50. Pp. 424. St. Louis: C. V. Mosby Company, 1942.

This book is of special value to graduate nurses and to student nurses approaching graduation and beginning to think seriously of their choice of one of the special branches of nursing open to the graduate registered nurse. The book deals adequately and at some length with social and economic trends and their relation to the nursing situation, plus a chapter on taking personal stock before graduation. This is followed by chapters dealing with the choice of a career, including descriptions of ten principal fields of special service, a number of miscellaneous opportunities, and general chapters indicating how to procure and hold a position and other useful general information. Additional chapters have to do with professional organizations and activities in the nursing field, including public relations. A unit of four chapters is devoted to personal problems of economic and social security and personal integration. There is an appendix dealing with the legal status of the nurse. Extensive bibliographies are given, and there is a good index. This book should be in the library of every nursing school and would be a valuable reference book wherever vocational guidance and counseling is being done.

Problems of Ageing: Biological and Medical Aspects. Edited by E. V. Cowdry, Washington University, St. Louis. A Publication of the Josiah Macy, Jr., Foundation. Second edition. Cloth. Price, $10. Pp. 956, with 129 illustrations. Baltimore: Williams & Wilkins Company, 1942.

The increasing interest in the problems of the care of the aged made necessary a new edition of this book. Since the publication of the first volume, a National Advisory Committee on Gerontology has been established, and the U. S. Public Health Service has undertaken a nationwide survey of investigations on aging. The National Research Council has set up a Committee on Aging, and an American Branch of an International Club for Research on Aging has been organized under Dr. William deB. MacNider of the University of North Carolina. The present volume includes nine new chapters. The older material has been revised and brought up to date. As a source book of information on the problems of aging, with good bibliographies and with articles by recognized authorities, this book may be unhesitatingly recommended as the most authentic compilation of material in the field.

Nutrition and Chemical Growth in Childhood. Volume I: Evaluation. By Iris G. Macy, Ph.D., Director, Research Laboratory, Children's Fund of Michigan, Detroit. With a foreword by Hugo A. Freund, M.D., President, Board of Trustees, Children's Fund of Michigan. Cloth. Price, $5. Pp. 432, with 67 illustrations. Springfield, Illinois & Baltimore: Charles C Thomas, 1942.

It will not be possible to evaluate this book properly until the second volume is available. Volume I, as the subtitle indicates, is simply an evaluation and summary of methods employed in a twenty year study of children's problems under the Children's Fund of Michigan. There is a clear exposition of the objectives and of the approaches, with an extensive bibliography. Also there is a complete tabulation of all the individual publications that have been issued since the project was initiated. Some of the important aspects of the problem are indicated by the chapter headings covering physiologic and chemical aspects of digestion, energy metabolism in childhood, metabolic balances and hematochemical studies. Nearly a third of the total page space is devoted to descriptions of methods. It is evident that the project is even more comprehensive than has been apparent from the separate papers that have been published. The participants are to be congratulated on the magnitude of the accomplishment.

The Medical Applications of the Short Wave Current. By William Bierman, M.D., Attending Physical Therapist, Mount Sinai Hospital, New York. With a Chapter on Physical and Technical Aspects, By Myron M. Schwarzschild, M.A., Physicist, Beth Israel Hospital, New York. Second edition. Cloth. Price, $5. Pp. 344, with 87 illustrations. Baltimore: William Wood & Company, 1942.

The revised edition of Bierman's work on short wave diathermy will be welcomed by all who seek a well written and scholarly monograph on the physics, physiologic effects and clinical uses of this new physical therapeutic agent which has found widespread employment in recent years. The chapter on physics and technical aspects has been condensed to about one third of its formal size to the definite advantage of the average physician, who is not interested in mathematical formulas and potential curves, and the clinical chapters have been correspondingly increased. An excellent chapter on fever therapy has been added, in the development of which method the author has carried on considerable clinical and laboratory research. Sixty new drawings serve to show all varieties of technical application. The author emphasizes his conviction that short wave diathermy exerts its clinical effects on the virtue of its thermogenic character, and there is no proof of any specific action.

A Textbook of Histology. By Alexander A. Maximow and William Bloom, Professor of Anatomy, University of Chicago, Chicago. Fourth edition. Cloth. Price, $7. Pp. 695, with 562 illustrations. Philadelphia & London: W. B. Saunders Company, 1942.

In accordance with the policy which has been followed since the appearance of the first edition of this standard textbook in 1930, a new edition has appeared after a lapse of four years. According to the preface, the greatest changes from the previous edition are in the introduction and the chapters dealing with bone, nerve, spleen, the female generative system and the eye. The text is liberally interspersed with excellent illustrations. The color plates in particular are noteworthy, and the publishers deserve great credit for the excellent reproduction of fine shades of color. Recent advance in the field of histology may be gaged in part by the fact that, of the nine references given at the end of the second chapter, eight bear dates of 1925 or later. This book holds its place as one of the leading text and reference books in the field.

Healthful Living. By Harold S. Diehl, M.A., M.D., Sc.D., Professor of Preventive Medicine and Public Health, and Dean of the Medical Sciences, University of Minnesota, Minneapolis. With a foreword by Morris Fishbein, M.D., Editor, Journal of the American Medical Association, Chicago. Whittlesey House Health Series. Morris Fishbein, M.D., Editor. New edition. Cloth. Price, $2.75. Pp. 499, with illustrations. New York & London: Whittlesey House, McGraw-Hill Book Company, Inc., 1941.

This edition enhances the usefulness of this readable book for lay persons, which in its previous edition enjoyed a well deserved success. It is a comprehensive, clear and easily understood presentation of the facts relating to better living. It is intended for the use of intelligent lay persons interested in the prolongation of years of useful living. As such, it completely meets the needs for which it is designed.

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Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

IRRITATION OF SKIN FROM SULFATHIAZOLE PREPARATIONS

To the Editor:—Two patients were recently seen with the picture of contact dermatitis, to whom powdered sulfathiazole had been applied for rather long periods of time. One was a middle aged workman whose hand had been injured. The contaminated wound had been sutured and the powdered sulfathiazole used as a dusting powder. The wound had long since healed, but the skin of the hand was swollen and the surface dotted with vesicles. There was considerable pruritus. The dry adherent powder was finally washed off with soap and water and cod liver oil ointment applied. For a time slight improvement was noted, but the vesicles soon spread, became purulent and appeared on other parts of the body. The other patient was an elderly woman on whose foot an operation had been performed. Sulfathiazole was used as a dry dressing. After a time the wound edges became inflamed, and hot wet boric acid packs were used. Vesicles soon appeared in the affected areas, which became pustular. Pruritus was intense. Other maculopapular lesions appeared in the bend of the elbow and other situations, which rapidly went through the stage of vesiculation to that of pustules. The condition became aggravated and extended to other areas of the body. Various antipruritic measures failed to relieve the distress for more than a few minutes at a time. In view of the poor solubility of sulfathiazole in water, it is hard to understand how this drug could be the cause of this condition, yet nothing else was used. There is no evidence of allergy in either patient and no history of any cutaneous lesions. Scratching might distribute the powder to other areas of the body, but lesions could hardly arise unless the skin had become widely sensitized. This sensitization must have come about either prolonged absorption had taken place, and the aqueous solutions are not readily absorbed. Could boric acid in 1 case or mild soap and water in the other have modified the matter of solubility or decomposed the sulfathiazole? Or are these instances of acquired cutaneous sensitivity comparable with mercury, formaldehyde and the like? Comments on these cases and pertinent references to the literature will be appreciated.

Ralph G. Mills, M.D., Decatur, Ill.

ANSWER.—Instances of irritation of the skin both from sulfathiazole powder and from sulfathiazole ointment have been noted with some frequency.

It is believed that what happened in this case was that a localized dermatitis developed and then a generalization in the form of an infectious eczematoid dermatitis occurred as the result of the patient's scratching. In this manner it would be possible to transfer the dermatitis to other parts of the body.

It is not known whether this was a sensitization phenomenon which could be transferred to other persons. No doubt this would occur in a certain number. It is also not known whether boric acid or soap and water would modify the solubility of the sulfathiazole or decompose it.

In a situation of this sort, soothing measures would be in order, e. g. the use of compresses of 2 per cent aluminum acetate or of saturated boric acid solution, or perhaps even of potassium permanganate, later to be followed by soothing preparations like boric acid ointment or rose water ointment.

THYROID MEDICATION AND HYPERTENSION

To the Editor:—Is thyroid medication contraindicated in a hypothyroid subject with essential hypertension? The basal metabolic rate runs consistently around minus 28 to 30, and the blood pressure is 190 systolic, 110 diastolic. Would thyroid medication have a tendency to elevate the blood pressure?

Earl H. Brown, M.D., Tucson, Ariz.

ANSWER.—The treatment of hypothyroidism is the same whether it is complicated by essential hypertension or not. The basal metabolism should be raised to normal with slightly increasing doses of thyroid and a maintenance dose determined, just as in any other patient with hypothyroidism. The only contraindications for giving an adequate maintenance dose would be development of angina pectoris or cardiac decompensation. Of course, in all patients over 40 years of age, particularly those with hypertension, the basal metabolism should be raised to normal slowly because of the possible presence of coronary disease, which may not be apparent when the basal metabolism is low. Specifically, the initial dose in such patients should not exceed one-half grain (0.032 Gm.) daily of U. S. P. thyroid. If the blood pressure is 150/110 when the basal metabolism is minus 28 to minus 30 per cent, it may rise slightly when the metabolism is raised to normal or it may show no change. However, a slight increase would not be a contraindication to the administration of thyroid.

SOLUTIONS FOR URIC ACID DETERMINATIONS OF BLOOD

To the Editor:—What may be the cause of my difficulties with the determination of uric acid in the blood? I use the method of Herman Brown (J. Biol. Chem. 68:123 [April] 1926) with a glass standard from Hellige, because I have not the facilities to prepare a reliable standard solution myself. When the reagents (Folin-Denis uric acid reagent, potassium cyanide Merck, R. Gr.) were fresh, the reaction worked reliably. But now, about a year later, it has been impossible to produce a color sufficiently deep blue to compare it with the standard. The potassium cyanide is kept in an ordinary bottle; the uric acid reagent, apparently, was not closed tightly enough, because there were some crystal deposits on the outside around the stopper. Could that be the cause of the difficulties? How could I prevent the failure of the reaction otherwise? Should the solution be kept in special (alkali free) bottles? If the Folin-Denis reagent does not keep long could you suggest a method with a longer keeping standard (plus) reagent?

Felix Mottek, M.D., Cleveland Heights, Ohio.

ANSWER.—It seems likely that the cause of difficulty has been the deterioration of the cyanide solution. Although potassium cyanide is mentioned, Brown, in the paper to which reference is made, employed sodium cyanide (5 per cent solution of the J. T. Baker C. P. product). Sodium cyanide should be prepared fresh once in two months, and some workers think it desirable to make up fresh solutions every two weeks. The glass bottles were probably not the source of difficulty. The Folin-Denis uric acid reagent appears to keep indefinitely. The use of a glass color standard for uric acid is legitimate, provided the calibration is repeatedly checked against pure uric acid under the conditions used in the determination. Otherwise errors are certain to creep into the results. This is especially true here, where the intensity of color is dependent not only on the age of the cyanide solution but also on the particular preparation of cyanide used.

Since Benedict (*J. Biol. Chem.*, 51:187 [March] 1922) observed that the color developed on uric acid with a uric acid color reagent (either that of Folin and Denis or of Benedict) was greatly intensified when cyanide was employed as the sole source of alkali, all the colorimetric uric acid methods have adopted the use of cyanide. On this account all the modifications of the Folin-Denis method (*J. Biol. Chem.*, 14:95, 1913) require the use of a reasonably fresh cyanide solution, and this problem would not be altered by employing another modification of the Folin-Denis method.

ADRENAL CORTEX AND SPLENIC EXTRACT IN GLAUCOMA

To the Editor:—I understand that in the past year or so certain cases of glaucoma have been successfully treated with standardized adrenal cortex and spleen extract. Will you please advise me of the present treatment of this condition and of any information you have on hormones and vitamins regarding it?

Douglas A. Jackson, M.D., Kansas City, Mo.

ANSWER.—There have been several reports concerning the treatment of glaucoma with adrenal cortex and splenic extract. The following abstracts from the recent literature seem to give little support to those who claim remarkable results from the use of these preparations.

Woods (A. C.: The Use of Extract of Adrenal Cortex in Glaucoma, *Arch. Ophth.* 14:936 [Dec.] 1935) reported 12 cases in which adrenal cortex extract was given intramuscularly in 11 and intravenously in 1. The intraocular tension was taken immediately before the injection and at intervals of one-half hour up to four hours afterward. In 3 cases there was no change in tension; in 2, minor fluctuations; in 3, a rise which was apparently not related to the injection and in 3, minor falls in tension. In 5 cases concentration of chloride, sodium and potassium in the blood plasma showed no alterations after administration of adrenal cortex extract. The author found no support for the theory of the pathogenesis of glaucoma advanced by Josephson or for therapeutic use of this extract.

Josephson (E. M.: *Eye, Ear, Nose & Throat Monthly*, 13: 453 [Jan.] 1935) advanced the theory that "adrenal cortex serves to render the capillaries less permeable to water of the plasma. In its absence there is an increased permeability of the capillaries to water of the plasma and the tissues become water soaked." Josephson reported 1 case of glaucoma simplex in which a tension of 42 mm. disappeared following an injection of adrenal cortex extract and an improvement in corrected vision from 20/30 to 20/15-2.

Adrenal cortex and splenic extract have been used by several ophthalmologists and a summary of their conclusions follows:

Lemoine (A. N.: Allergies in Ophthalmology, *Arch. Ophth.* 28:79 [July] 1942) has stated that since in allergy there are loss of sodium and water and edema of the shock organ tissues, since the adrenal cortex regulates the sodium-potassium-water balance and since the medulla reduces the edema of the shock

organ tissues, it stands to reason that a dysfunction of the adrenal gland must play a great part in the disturbed sodium-potassium-water balance and in the edema of the shock organ tissues in allergic manifestations.

Adrenal cortex is a parasympathetic sedative, and it would seem that the hormones of these glands must be a factor in bringing about an imbalance of the vegetative nervous system.

Goldenburg (Michael: Splenic Extract in Glaucoma, *Illinois M. J.* **78**:495 [Dec.] 1940) stated that splenic extract is not a cure for glaucoma but that its greatest value is as a synergist to pilocarpine and physostigmine especially in the noncongestive type of glaucoma.

Miller (E. A.: The Treatment of Glaucoma with Splenic Extract, *Am. J. Ophth.* **22**:536 [May] 1939) believes that primary glaucoma is an angioneurotic edema within the eyeball, just as migraine is an angioneurotic edema of the brain. He states that this is proved by the prompt relief of symptoms and reduction of intraocular pressure following the injection of a deproteinized extract of hog spleen. He reports that therapeutic effects are not in proportion to the degree of the concentration of the splenic extract and favorable results can be obtained only if the extract happens to contain the curative element.

Alvis (E. B.: The Effect of Splenic Extract on Chronic Simple Glaucoma, *Am. J. Ophth.* **23**:529 [May] 1940) concludes that the administration of splenic extract in doses up to 20 cc. daily is harmless but that the injection of such a large amount of fluid is rather uncomfortable to the patient. In none of his cases in which splenic extract alone was tested did it hold the tension at a lower level than did the usual therapy of physostigmine and pilocarpine. In 2 cases the tension rose as if no treatment at all were being given. That it did not definitely go up without the usual miotics in all cases may have some significance. Alvis states that, from the results obtained in his small series of 8 cases, it would seem that the value of splenic extract (40 per cent) in the treatment of chronic simple glaucoma is extremely doubtful.

ANOREXIA IN YOUNG CHILD

To the Editor:—A boy aged 2½, weighing 29 pounds (13 Kg.) and 32 inches (81 cm.) tall, refuses to take any and all foods served. It is necessary to feed him like an infant, practically forcing him to take food into his mouth. The food must be strained; solid particles will cause him to gag and vomit. The mother complains that the youngster is willful and determined and will disregard any request if possible. The past history reveals a normal delivery, bottle fed baby with numerous formula changes in short intervals and bilateral otitis media. The latter disorder confined the child to the hospital for two weeks, during which time a transfusion of 300 cc. of whole blood (father) was administered. Recovery was uneventful. X-ray examination of the chest in the hospital revealed an enlarged thymus, which disappeared three months after one x-ray irradiation. The physical findings are as follows (last examination made on Aug. 4, 1942): The general appearance is that of a pale youngster breathing through his mouth. The skin is moderately dry. His muscular control is not adequate for his age. He walks or runs with considerable effort. When running he throws his shoulders back and abdomen forward, runs for a short distance and then asks to be picked up. He walks for a short distance and then breaks into a run. He falls readily. The head examination reveals enlarged cryptic tonsils and a considerable amount of adenoid tissue. A gland about the size of a small walnut can be seen and palpated on the inside of the sternocleidomastoid muscle on the left side. The chest is normal both physically and roentgenologically. The abdomen protrudes beyond the chest wall; there is no evidence of distention, however, and it returns to normal when the child is lying down. The lower extremities are normal throughout. The feet are flat. Spinal, neurologic and orthopedic examinations are negative. Laboratory examination reveals stool massive, grayish white and containing no occult blood on several examinations. The urine is normal. The blood count reveals 4 million red blood cells and 75 per cent hemoglobin; differential count is normal. The parents are chiefly concerned with his anorexia and the necessity of feeding him strained foods. Competent pediatricians accounted for this trouble on a neurotic basis, and they considered the findings here enumerated as insignificant. Your opinion and suggestions as to the management of this case will be appreciated.

M. J. Antell, Major, M. C., A. U. S.

Answer.—There are several possibilities in the approach to a case of this type. A good deal of the child's difficulty may be due to enlarged tonsils and adenoids. For this reason either roentgen treatments to the nose and throat or removal of the adenoids surgically may be done. He would be considered too young for the removal of the tonsils without more specific reasons, e. g. repeated tonsillitis or obviously chronically diseased tonsils.

Prior to this, however, the child should have a tuberculin test with an x-ray examination of the chest if possible. It would also be well to place him on large doses of vitamins A, B, C and D, since he is probably suffering from a generalized avitaminosis and seems to show some of the symptoms of rickets. Finally the possibility of celiac disease or even some congenital anomaly of the gastrointestinal tract should be considered. If the measures outlined fail to help, the celiac diet could be tried: a diet high in proteins and low in fats and carbohydrates. An anomaly of the gastrointestinal tract could be discerned only by a complete x-ray workup.

In the absence of any pathologic reason for the continued anorexia, the best plan of treatment would be complete removal of the child from his present surroundings, especially the mother. Such children often begin to eat heartily when temporarily placed in another home, preferably not with other relatives.

The suggestions made are merely suggestions with a wish to be helpful, since the information sent is hardly sufficiently complete to warrant a diagnosis.

DILATED RIGID PUPIL

To the Editor:—What is the explanation, significance, prognosis and treatment for paralysis of the pupillary constrictor muscle fibers of one iris? The other iris is perfectly normal. The affected eye responds slightly, if at all, to a bright light and there is no accommodation. When light is flashed in the affected eye the pupil of the other eye contracts. Eyegrounds, pressure, visual fields, muscle balance, fusion and media are all normal. Vision is 20/20 each eye with correction. The patient is a young man, a college student, who has been under terrific pressure of hard work for several months. The Wassermann reaction, blood pressure, urine and general physical examination show nothing wrong. No medicaments have been used in the eye at any time. There is no paralysis of any other muscle. The patient has no symptoms. The enlarged pupil was discovered accidentally.

Charles Tainter, M.D., Port Jefferson, L. I., N. Y.

Answer.—The presence of a dilated rigid pupil and loss of accommodation but presence of consensual reaction in the fellow eye can speak only for an internal ophthalmoplegia. This is due to loss of function of branches of the third nerve and most frequently is of central (nuclear) origin. If injury can be ruled out, some form of toxemia is the underlying cause. Syphilis is a frequent factor, but almost any form of endogenous or exogenous toxin could thus affect the third nucleus.

The dilated rigid pupil may cause an interference in accommodation that is not a real paralysis. In such cases it is well to examine the pupillary margin for microscopic tears that extend through the sphincter pupillae and prevent the constricting reaction. Such tears are usually the result of long forgotten blunt trauma. They can be detected only biomicroscopically. No treatment is of any value.

If, however, the pupillary paralysis is of toxic origin, careful search must be made for the source of the toxins, which must be eliminated. Locally, some little benefit is obtained from the daily use of a weak pilocarpine solution.

INGUINAL HERNIAS

To the Editor:—There seems to be a difference of opinion among physicians as to the differentiation between complete and incomplete indirect inguinal hernias. I would appreciate any information you can furnish on this.

J. L. McClintock, Major, M. C., A. U. S.

Answer.—Watson (J. F.: Hernia, ed. 2, St. Louis, C. V. Mosby Company, p. 145) defines an incomplete inguinal hernia as one in which the hernia or protrusion has passed through the internal abdominal ring into the inguinal canal, and a complete inguinal hernia as one which has descended through the inguinal canal past the external abdominal ring. For practical purposes these are considered merely as degrees in the development of an indirect inguinal hernia. A suitable description would be a small or a large hernia. Both are hernias and both should be treated.

UNILATERAL FACIAL PARALYSIS

To the Editor:—A girl aged 18 had nasal diphtheria when 2 years old, resulting in unilateral facial paralysis which has shown little tendency to recover. A neurologic surgeon proposed nerve grafting several years ago. A surgeon in New York discredited the grafting and suggested the decompression operation but offered little encouragement regarding results, and for that reason no operation was performed. Has any new operative procedure been developed which offers better cosmetic results than grafting or the decompression operation? M.D., Virginia.

Answer.—For years unilateral facial paralysis has been treated by fixing the inactive distorted muscles with strips of fascia lata which range from the temporal region down to the various points to be fixed. This has been quite satisfactory, as the motion of the unparalyzed side of the face goes a long way to hide the fact that one side is paralyzed.

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